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ABSTRACT

Nutrition has always been an important subset of health education, and this instructional package is designed to help teachers instruct students about nutrition and health at the same time. The major emphasis of this package is to provide elementary school students with the knowledge needed to make informed food choices and thereby enable them to become responsible for their personal nutritional health. Nutrition concepts classified according to four major health content areas (mental health, physical health, safety, and community health) are identifed in the individual lesson plans included in this package. The teaching package begins with a section on "The Big Picture" that provides an overview of the major concepts and generalizations of nutrition in health. The first section is followed by seven sections, divided by grade level, of detailed lesson plans for K-6 teachers to use with their students. Appendices of additional resources are also included. (JMK)

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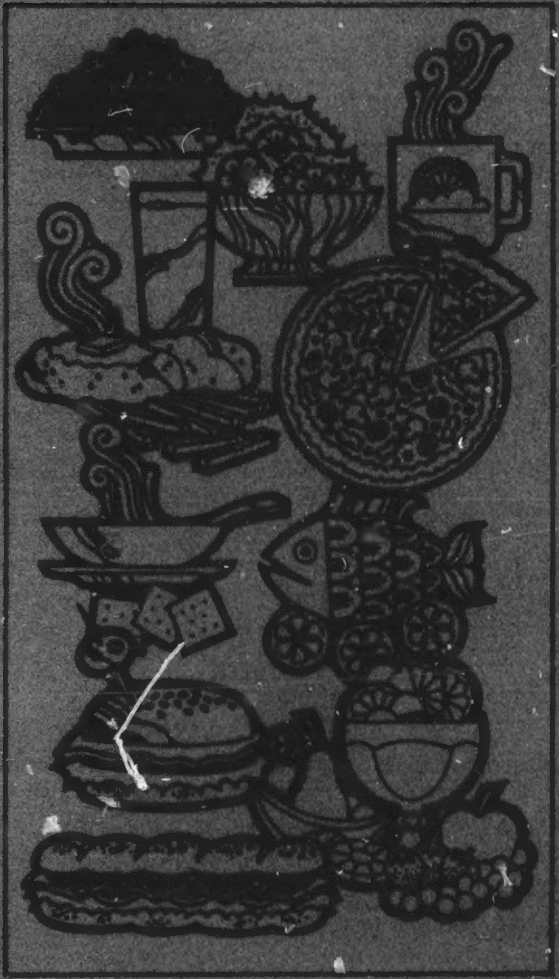

NUTRITION IN HEALTH

a curriculum guide

Wisconsin Department of Public Instruction
Herbert J. Grover, State Superintendent

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NUTRITION IN HEALTH
An Instructional Package for Grades K-6

Developed by Karen Koeppe, Graduate Assistant, under the direction of Dr. S. Jane Voichick, University of Wisconsin-Madison.

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WHAT DO TEACHERS SAY ABOUT THE ACTIVITIES IN THIS PACKAGE?

How do teachers feel about the nutrition lessons in this package? To find out, a sample of 20 lessons (2 from grade K, and 3 from each grade, 1-6) was field-tested by a non-random sample of 21 elementary teachers throughout the state of Wisconsin. The teachers actually used the lessons in their classrooms. Here's what some of them had to say:

About Specific Lessons:

Grade 1: "Be a Smart Snacker!"

> *"My students said the best part of First Grade was making the recipe, 'Bumps on a Log'! Children were able to discuss good snacks even weeks later! Your lesson plans made teaching nutrition easy - I wish I had more like them! How about writing a book?"*

- Ellen Bogenrief
1st Grade Teacher
Merrill School, Beloit, WI

Grade 2: "No Icky, Sticky Snacks for Me!"

> *"I've never seen so many children go after the fresh fruit! I also had a birthday treat in class that day and this activity was far more popular with all!"*

- Charleta Affeldt
2nd Grade Teacher
McNeal Elementary School
Beloit, WI

Grade 5: "The Great Sugar Search"

> *"The students' sharing session following their label search indicated their surprise at finding sugar(s) in food items they hadn't suspected. This was a very revealing activity!"*

- Nancy Booth
5th Grade Teacher
Deerfield Elem. School
Deerfield, WI

About the Lessons in General:

> *"I'm excited about these activities! They are easy to use and very effective. The 'do-at-home' worksheets (where students solicit help from their parents) are very important as I feel the majority of parents seem not to be aware of good nutrition."*

- Carol Zuroske
4th Grade Teacher
St. Aloysius School
Sauk City, WI

> *"The lessons were well-organized and easy to follow."*

- John Soehnlein
6th Grade Teacher
Morgan Elem. School
Beloit, WI

About the Lessons in General (Cont'd.)...

> *"Excellent step-by-step instructions. Super worksheets and handouts! The generalization statement at the top of each lesson and the Teacher's Notes section help place the lessons into perspective."*

- Roland Belisle
6th Grade Teacher
Racine Unified School District
Racine, WI

> *"I enjoyed teaching these creative lessons! I plan to use these in my summer school program for Head-Start kindergartners and in my next year's kindergarten class."*

- Marth Mateer
Kindergarten Teacher
Meadowview Elem. School,
Oak Creek, WI

INTRODUCTION

ANNOUNCING - - AN INTEGRATED APPROACH TO TEACHING NUTRITION! This instructional package can help your students learn about 2 important subjects - Nutrition and Health at the same time!

The nutrition activities in this package are different. Their step-by-step, detailed format means that you as a teacher don't have to spend valuable time planning entire lessons or units. If, however, you have extra time, or simply enjoy creating your own lessons, it's possible to do so by using one of the generalizations in the BIG PICTURE section as the foundation for an activity.

There is no limit to the number of ways in which nutrition can be incorporated into your health education curriculum! The ideas in this instructional package represent only a few of the many ways this can be accomplished.

How can the nutrition lessons in this guide fit into your health education program?

There is great diversity in elementary health education programs in Wisconsin. Curriculum guides differ. Textbooks differ. And the emphasis given to nutrition varies widely. Yet most health education programs have a common foundation. They are designed to teach certain concepts covering 4 major health content areas as established by the Wisconsin Department of Public Instruction.[1] These areas are: mental health, physical health, safety, and community health.

Nutrition concepts classified according to these 4 major health content areas are identified in the individual lesson plans included in this package. They are also listed in the BIG PICTURE section to help you find materials to supplement the concepts you teach in your classroom.

Please be sure to take a look at all the lessons in this package. You'll probably find that many lessons can be modified (or even used "as is") at several different grade levels. The activities are written in a structured fashion, but don't hesitate to alter them to meet your specific needs.

Why teach nutrition in health education?

Nutrition has always been an important subset of health education. However, the fact that health education programs in Wisconsin are being implemented starting in kindergarten and which continue through

FEATURES

**Unique approach*

**Integrates Nutrition into Health Education*

**Activities for each grade, K-6*

**Time saving, pre-planned lessons*

**Measurable objectives which can be used to evaluate learning*

**Selected lessons field-tested in actual K-6 classrooms by elementary teachers*

**All lessons reviewed by nutritionists*

**Attractive student worksheets/ handouts*

**Recipes that are easy-to-prepare in the classroom are included*

**Parent information letters provided*

**Supplementary references and basic nutrition information included*

**"The Big Picture" section - contains concepts and generalizations for teachers to use in creating their own lessons* the sixth grade is a convincing argument for making health education the focal channel for nutrition education in elementary schools.

The major emphasis of this package is to provide elementary school students with the knowledge needed to make informed food choices and thereby enable them to become responsible for their personal nutritional health.

A final word about this instructional package:

As a teacher, you are a very important link between students and the information provided by the NET (Nutrition Education and Training) Program. That's why this package was designed with teachers in mind. The content of a set of 20 lessons (2 from kindergarten; 3 from each grade 1-6) was field-tested in actual classrooms by elementary teachers across the state. Their suggestions were sought to help make this package as useful as possible for educators. Educational materials, however, can always be improved, and additions can always be made. We'd therefore like your opinions, too! What would you add to this package? What specific changes would make it easier to use? Please write and let us know!

Chet Bradley
Supervisor
Health Education

or

Carol A. Philipps
Nutrition Education Coordinator
Nutrition Education & Training (NET) Program

Wisconsin Department of Public Instruction
125 South Webster Street, P. O. Box 7841
Madison, Wisconsin 53707
608/266-3390

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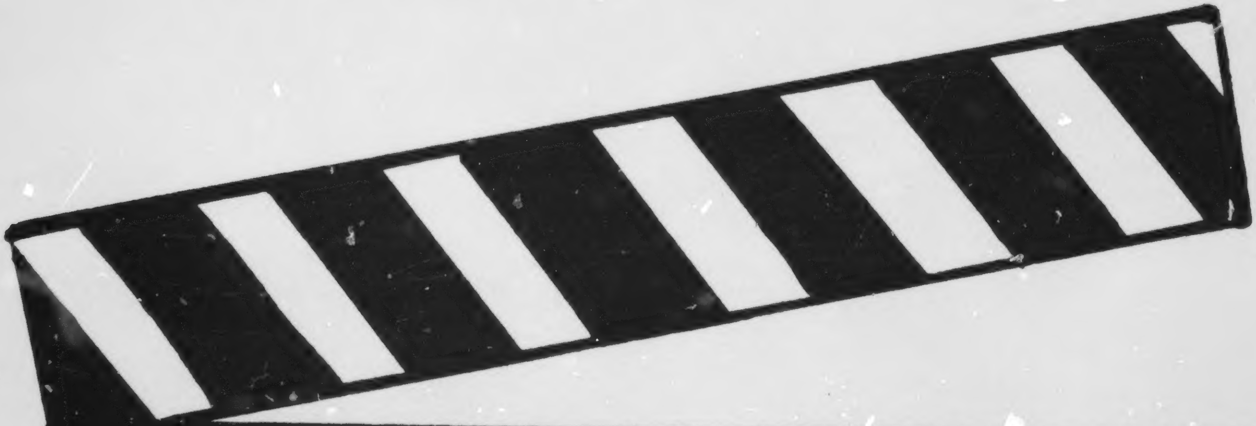
[1] Health Education - A Planning Resource for Wisconsin Schools
Wisconsin Department of Public Instruction, 1977.



THE BIG PICTURE

AN OVERVIEW OF NUTRITION IN HEALTH

- Major Concepts
- Generalizations

(arranged according to major health content areas)

THE BIG PICTURE: AN OVERVIEW OF NUTRITION IN HEALTH

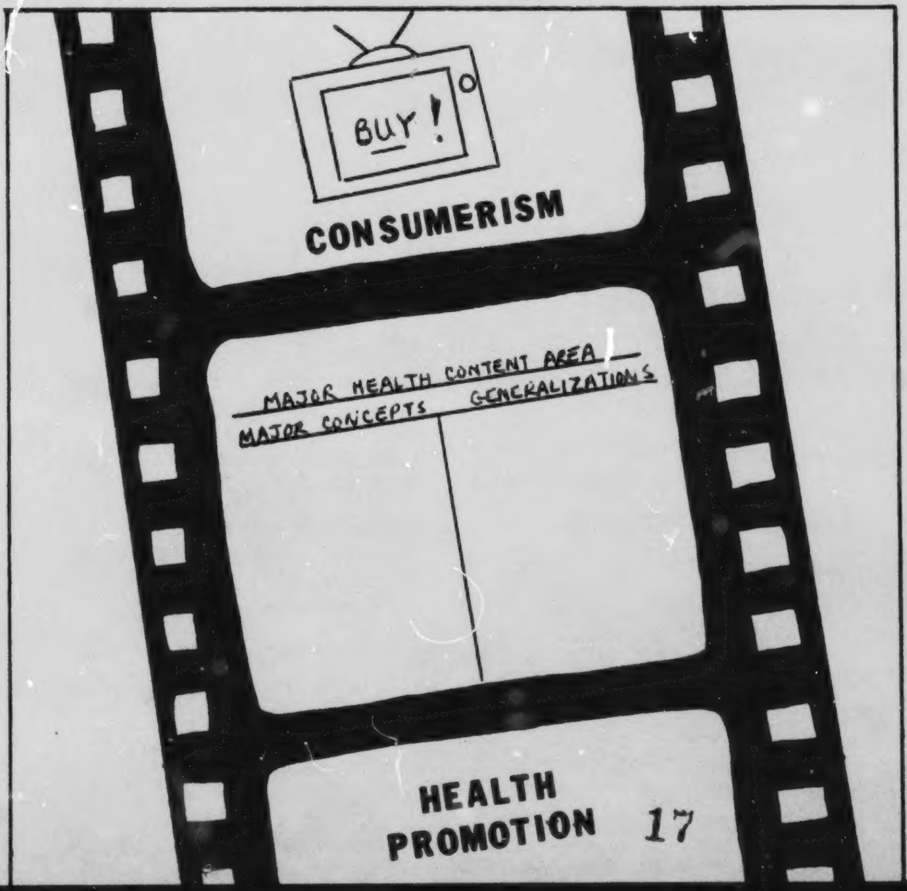
Teaching with the instructional package is a little like making a movie- - a movie about the impact of nutrition and health. The entire story can never be told. But the activities in this guide allow your students to participate in a few scenes.

Film-making requires subject matter, a script and a director. So does teaching. With the help of this overview and the lessons in this package, you can provide your students with the direction needed to help them learn about the social/psychological aspects of eating, the relationship between physical health and nutrition, consumerism and food safety, and the role of nutrition in environmental and community health. Health promotion is the recurrent theme throughout the package.

The following pages give you a "wide-angle" view of some of the many ways of integrating nutrition into health education in your classroom. In other words, they provide you with a glimpse of "The Big Picture".

HOW TO USE "THE BIG PICTURE"

- Thumb through the overview and select a concept you want to bring into focus in your classroom. The nutrition concepts listed in the following pages can be matched with the major health content area you're teaching.
- The concepts set the scene. These serve to clarify the subject matter in a general way.
- The generalizations give direction to the scene These are the main ideas; most show a relationship between concepts from nutrition and concepts from health.
- Generalizations followed by a number are accompanied by a "script" (a pre-planned nutrition lesson). The number denotes the grade level in which the particular lesson appears.



MENTAL/EMOTIONAL HEALTH UNIT

(Social/Psychological Aspects of Food & Nutrition)

MAJOR CONCEPTS	GENERALIZATIONS
Social Influences on Food Choices	- Food is often present when people gather socially.(1) - Eating in groups is a social practice which can serve to meet sociological needs such as companionship, belonging, etc.(1) - Friends and peers can influence the food choice we make.(3)
Food Meanings	- Food acquires meanings which reflect basic human needs and wants (such as: love, security, fun, friendship, memories, etc.). (3) - People may eat to satisfy their psychological needs, such as: love, security, a sense of belonging, etc. (3)
Eating Behavior	- Feelings often affect eating behavior. One's eating behaviors can also affect his/her feelings. (3,4) - Boredom, loneliness, insecurity, frustration, anxiety, unhappiness, or anger may either initiate or inhibit eating behavior.(3)
Food Advertising	- Food purchasing and eating behavior may be influenced by food advertising. (K,3,5,6) - Food companies use a variety of techniques to advertise their products and encourage people to buy them. (K,3,5,6)
Food Fallacies	- A food fallacy is an incorrect assumption with regard to food. (5)

MAJOR CONCEPTS	GENERALIZATIONS
Food Fallacies (Cont'd.)...	- Some popular media messages (e.g. T.V. commercials, magazines and newspaper ads, etc.) often contain misleading or incomplete nutrition information. - Dietitians, nutritionists, and food and nutrition specialists are reliable sources of nutrition information. (5)
Eating Disorders	- Obesity can influence the way the obese person is treated by others, which, in turn, can influence that person's self-concept. (4)

DRUG AND NUTRITION MINI-UNIT

MAJOR CONCEPTS	GENERALIZATIONS
Multivitamin Pills	- Vitamin/Mineral supplement pills are not "health pills". There is no scientific evidence that extra amounts of vitamins will provide extra health benefits.(6) - A vitamin pill cannot substitute for good eating habits, nor does it contain all the nutrients needed for good health. Eating a balanced diet (including a variety of foods) is the surest way of getting all the nutrients needed for health.(6)
Vitamin Toxicity	- Vitamins taken in very large doses above the recommended nutritional levels may serve non-vitamin chemical functions in the body, many of which have been demonstrated to be harmful. (6)
Alcohol	- Excessive alcohol consumption can be harmful to health and may increase the body's requirements for certain nutrients.(6)
Caffeine	- Large intakes of caffeine (derived from coffee, tea, some carbonated beverages, and chocolate/cocoa) can affect a person's health.(5)

PHYSICAL HEALTH - NUTRITION UNIT

MAJOR CONCEPTS	GENERALIZATIONS
Growth	- Children grow in the same general way, but at different rates. (1)
Food Service	- Plants and animals are the two main sources of food. (1)
Nutrients	- A "nutrient" is a component of food that provides nourishment for the body and which plays a role in the chemical processes involved in the maintenance of life, specifically: 1) The growth of new tissue, 2) the repair and maintenance of tissues, and 3) the production and utilization of energy.(4,5,6) - Each of the major classes of nutrients (protein, carbohydrate, fat, vitamins, minerals, and water), has specific functions in the body.(5,6) - Many kinds and combinations of foods are needed to achieve a well-balanced diet. No single food provides all the nutrients needed for health. (5) - An individual's nutrient requirements are influenced by many factors (e.g. size, growth rate, pregnancy, lactation, illness, severe climate, etc.). (5)
Food Groups	- Foods are classified into groups according to similar nutrient composition. (5)
Dietary Fiber	- Fiber, although not a nutrient, is an essential component of a person's diet as it contributes bulk necessary for regular elimination. (4)

MAJOR CONCEPTS	GENERALIZATIONS
Energy/Calories	- The body requires energy from food for growth, maintenance, repair and activity. (K,1) - Food energy is measured in kilocalories. A kilocalorie (kcal) is a measure of heat energy. (3,4,6) - Carbohydrates, protein, and fat are nutrients that provide kilocalories; vitamins and minerals, water, and fiber do not provide food energy. (5) - Fats are the most concentrated sources of food energy. They contain over twice the food energy value of either carbohydrates or protein. (5) - The amount of food energy a person consumes should approximately "match" the amount of energy s/he expends through daily activities and physical exercises. (6) - If food energy consumption exceeds energy expenditure, obesity or overweight may result; conversely, if energy expenditure exceeds food energy intake, a person may become underweight. (4,6) - Persons who are excessively overweight or excessively thin have more health problems than persons of ideal body weight. (4)
Dental Health	- Proper nutrition and dental care promote good dental health. (2,3,5) - Tooth decay is more likely to occur under certain conditions. (2,3,5) - Certain types of food promote tooth decay; there are many food choices a person can make that do not promote tooth decay. (2,3,5) - There exist nutritious and dentally - acceptable alternatives to traditional holiday and party "sweet treats". (2,3,5)

MAJOR CONCEPTS	GENERALIZATIONS
Digestion of Food	- Digestion implies the physical and chemical breakdown of food into smaller units that the body can use. (5) - After food is digested, it is absorbed into the bloodstream through the walls of the small intestine.(5)
Breakfast	- Breakfast is an important first source of nutrients for the day. (K,2,4,5) - A wide variety of foods can be eaten for breakfast. (K,2,4,5) - Breakfasts can be easily, quickly, and simply prepared. (K,2,4,5)
Lunch	- Many schools have a cafeteria that provides a nourishing hot lunch. (4) - Lunches prepared at home and carried to school in a brown bag or lunch box can also be nutritious. (3)
Snacking	- Snacks which are high in nutrients in relation to calories (i.e. high nutrient density) contribute to a person's daily nutrition. (K,1,2,3,4,5,6) - Snacks should be simple and easy to prepare. (K,1,2,3,4,5,6) - Nutritious snacks can be selected from (some) vending machines. (6) - People can influence food choices offered by vending machines by expressing preferences. (6)

SAFETY AND CONSUMERISM UNIT

MAJOR CONCEPTS	GENERALIZATIONS
Safe and Sanitary Food Practices	- There are safe and sanitary practices recommended for the selection, preparation, and storage of foods in order to optimize the food's nutritional value. (5) - Some types of food are relatively perishable and require special storage conditions.(2) - Certain nutrients (e.g. the water-soluble vitamins) can be lost during cooking; there are accepted cooking methods which minimize nutrient loss from foods. (5)
Nutrition Labeling	- All fortified foods and all foods for which a nutritional claim is made must, by law, display nutrition information on the labels. (6) - Nutrition information panels (labels) can be used in a variety of ways to aid the consumer. (6)
Food Additives	- Food additives are all those materials, natural and synthetic; which aid in the manufacture, storage, and nutritive value of food. - Certain food additives may be harmful to health if consumed in excess. Among the most common food additives are salt and sugar; an excess consumption of either may lead to health problems. (5,6)

COMMUNITY AND ENVIRONMENTAL HEALTH UNIT

MAJOR CONCEPTS	GENERALIZATIONS
Food Chain	- The process of passing energy from the sun through a community of plants and animals in a step-by-step series of eating and being-eaten is called the food chain. (3) - Eating "low" on the food chain can be healthy and energy-efficient. (5,6)
Vegetarian Diets	- Vegetarian diets consist primarily of grains, legumes, nuts, seeds, fruits and vegetables - all of which are "low" on the food chain. (5,6)
Protein Complementation	- When consuming a vegetarian diet, care must be taken to correctly match, or complement, proteins in foods eaten to maximize the efficiency with which the protein is used by the body. (6)
World Hunger	- Inhabitants of this planet are interdependent on finite resources, including food. (6) - Food is not evenly distributed among the world's population resulting in malnutrition in many regions of the world.(6) - There are steps people can take to learn more about hunger in the world. (6)
Food Wastage	- When food is thrown out, energy and nutrients are wasted.(4) - Students can take steps to help decrease food waste in their school lunch program, as well as their personal food waste. (4)

MAJOR CONCEPTS	GENERALIZATIONS
Growing One's Own Food	- Energy can be saved and nutrition improved by growing one's own food. (K,6)

HEALTH PROMOTION UNIT

MAJOR CONCEPTS	GENERALIZATIONS
Physical Fitness/Exercise	- Nutrition and exercise are equally important in achieving overall fitness. (6)
U.S. Dietary Guidelines for Americans	

***NOTE:** This unit also includes a Nutrition awareness "self-check" (entitled, "NUTRI-SCORE") designed for use by 6th grade students.

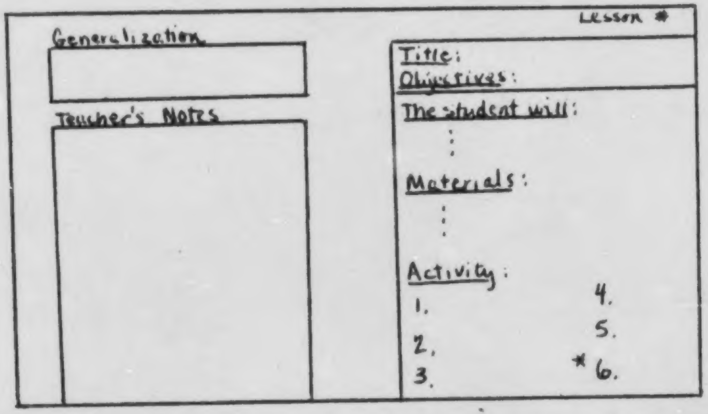
INSTRUCTIONAL MATERIALS

LESSON PLANS

*The diagram to the right is an illustration of a lesson plan for a nutrition activity.

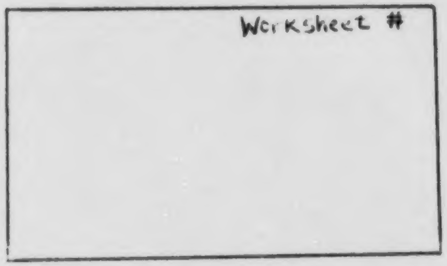
*Major features are identified.

*Some activities include worksheets, handouts and/or recipes (shown below).


Lesson #
Generalization
Teacher's Notes
Title:
Objectives:
The student will:
Materials:
Activity:
1.
2.
3.
4.
5.
*6.

(*Lessons continued on reverse side.)

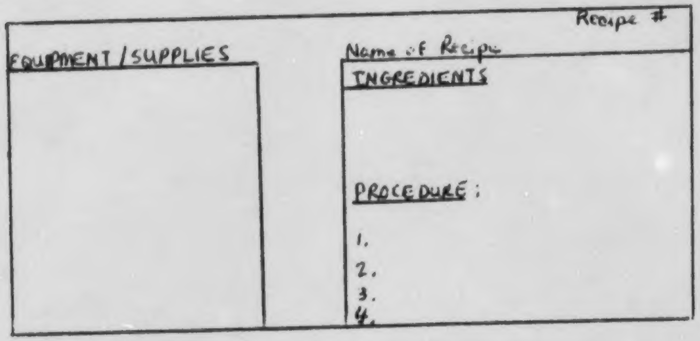
WORKSHEETS/HANDOUTS



*Lessons requiring worksheets and/or handouts list the worksheet/handout numbers as part of the list of required materials.

*Be sure to xerox worksheets/handouts for your students before beginning an activity.

RECIPES


Recipe #
EQUIPMENT/SUPPLIES
Name of Recipe
INGREDIENTS
PROCEDURE:
1.
2.
3.
4.

*The Recipe numbers corresponds with the number of the nutrition lesson which requires it.

GRADE K

Grade K

NUMBER	LESSON TITLES	GENERALIZATIONS	HEALTH CONTENT AREA
K-1	"All Wound Up for Another Day"	Breakfast is an important first source of nutrients for the day.	Physical Health
K-2	"Crunchy Munchies"	Nutritious snacks can be simple and easy to prepare.	Physical Health
K-3	"Name that Catch!"	Nutritious foods give young bodies nutrients needed to grow.	Physical Health
K-4	"What is a Commercial?"	Food purchasing and eating behavior may be influenced by food advertising.	Mental Health (Psychological/ Emotional Aspects of Nutrition)
K-5	"Let's Make Our Own Food Commercials"	Food advertisers use different techniques to influence consumer's food choices.	Mental Health (Psychological/ Emotional Aspects of Nutrition)
K-6	"Growing My Own Food"	Energy can be saved and nutrition improved by growing one's own food.	Community and Environmental Health

GENERALIZATION

Breakfast is an important first source of nutrients for the day.

TEACHER'S NOTES

Lesson #K-1

TITLE: "All Wound Up for Another Day!"

OBJECTIVES:

The student will:

- state the importance of eating breakfast.
- realize that like all fuel, food is used up by the body and must be constantly supplied.

MATERIALS:

- small plastic or metal "wind-up" toy
- paper
- crayons

ACTIVITY:

1. For the first part of this activity, have children sit in a large circle on the floor. (You should sit on the outside of the circle with them.)

2. Wind the toy up loosely (a few cranks) and before placing it near the middle of the circle for all to see, tell your students to carefully observe what happens to the toy. When the toy stops, ask children what happened. (Toy "ran out of energy".) Ask them what you could do to make it move again ("wind it up"). This time, wind up the toy, set it in motion, but "catch it" before it completely runs down. Quickly rewind the toy to keep in continuous motion.

3. Tell the children that their bodies are something like the toy in that their bodies can work for hours but eventually they run down (run out of energy) and must be "wound up" again. Ask your class how bodies get "wound up"? State that food, eaten at different times of the day, keeps our energy levels high and our bodies "wound up" so that we

can work and play without having to stop.

4. Ask children when they eat during the day. Have them name the 3 main meals of the day (breakfast, lunch, supper).

5. Ask the class why eating just once a day won't last us all day long? (The body needs to be refueled or "wound-up" every few hours to keep going strong).

6. Ask children how they might know when they're starting to run out of energy. (i.e. feel hungry, get tired, stomach rumbles, etc.)

7. Using a clock, figure out how many hours pass between supper the night before and breakfast the next morning. (If children have difficulty reading time or haven't yet learned how) just simply stress that there is a long time between the 2 meals). Emphasize that like the toy which they saw run down, our bodies run out of energy overnight and need to be refueled ("wound up") at breakfast.

8. Pass out paper and crayons. Have each child draw a picture of his/her favorite nutritious breakfast (have them include foods they eat and drink). After they are finished drawing, children should share their pictures with each other. While sitting in a circle, have each child individually hold up his/her drawing and present the following information:
a) identify breakfast food choices on the drawing.
b) state who usually makes his/her breakfast at home and c) state whether or not he/she eats breakfast every morning.

9. Make a bulletin board display of the breakfast drawings.

GENERALIZATION

Nutritious snacks can be simple and easy to prepare.

TEACHER'S NOTES

TITLE: "CRUNCHY MUNCHIES"

OBJECTIVES:

The student will:

- understand the concept of a nutritious snack
- prepare an easy-to-fix snack of high nutritional value

MATERIALS:

- recipe card "Crunchy Munchies" (#K-2)

ACTIVITY:

1. Begin by asking the children if they have ever eaten a snack. Ask them to give examples of when they like to eat snacks (i.e. after they get home from school, before bedtime, etc.). Question your students as to what kinds of food they like to eat for snacks.
2. Compare snacks with meals by asking children which of the two contains more food. Ask children if there are some foods they eat for snacks that they might also eat for meals (such as: a glass of milk, a piece of fresh fruit, fruit juice, peanut butter sandwich, etc.)?
3. Summarize by telling your class that snacks are small (or "mini") meals and are made up of similar types of nutritious foods.
4. Tell your students that they will be making a nutritious snack - one that will give them lots of energy to run and play.
5. Take out recipe for "Crunchy Munchies" (Note: Please read the recipe prior to the activity and have ingredients assembled ahead of time).
6. Have children wash their hands since they will be doing the actual snack preparation. (Explain why hands must be clean when handling food.) Make sure you have an adequate supply of moistened paper towels available as hands will be sticky after recipe preparation.
7. Prepare "Crunchy Munchies" according to recipe instruc-instructions.

8. Ask your students if they liked the snack. Is it crunchy? The recipe can be xeroxed and sent home to parents, if desired.

EQUIPMENT/SUPPLIES:

Measuring cups

Spoons

Spatulas

6 small bowls

1 large bowl

1 large platter or flat pan, or cookie sheets

Large wooden spoon for stirring

Waxed paper

Moistened paper towels (for clean-up)

NAME OF RECIPE: "CRUNCHY MUNCHIES"

INGREDIENTS:

1 c. peanut butter (smooth or crunchy)
1 c. honey
1 c. cocoa powder (or) *carob powder
2 c. toasted wheat germ
2 c. peanuts (unsalted preferred)
1 c. toasted sunflower seed kernels
2 c. shredded coconut

*Carob is a milk-free caffeine-free, cocoa & chocolate alternative.

PROCEDURE:

1. Place each of the first 6 ingredients into separate bowls and assemble these on a low table or work bench so children can readily see, smell and feel the ingredients.

2. Identify each ingredient of "Crunchy Munchies" to the children. Have any of them ever tasted wheat germ, peanuts or sunflower seed kernels before? Tell them that these 3 foods will make the snack "crunchy".

3. Combine the first 6 ingredients in the large bowl and stir well to thoroughly mix. (You should do this.)

4. Have children take small handfuls of the mixture and roll into balls (the size of a walnut). These should then be rolled in coconut (which should be spread on a large platter, flat pan, or cookie sheets so that many "hands" can roll at the same time).

5. Have students place finished balls on sheets of waxed paper.

6. When the entire batch is finished, EAT - - CRUNCH & MUNCH!

GENERALIZATION

Nutritious foods give young bodies nutrients needed to grow.

TEACHER'S NOTES

TITLE: "Name that Catch!"

Lesson #K-3

OBJECTIVE:

The student will:

- Learn the names of foods important for health and growth.

MATERIALS:

- Food Models (Dairy Council) (select "healthy" food models appropriate for your class).
- Paper clips
- String
- Magnet (small)
- 20" wooden dowel rod (or ruler, yardstick).

ACTIVITY: *NOTE: This game is best when played with a group of 5-6 children.

1. Put a paper clip on each food model and spread the models on the floor or table.
2. Attach the string to a "pole" (Wooden dowel rod or ruler), and tie a magnet to the end of the string.
3. Have a student "fish" for a food model until one is "caught" by the magnet attracting the metal paper clip. Tell students that if s/he gives the correct name for the "catch" (food model), then s/he can keep it. If not, the food gets "thrown back" into the pile.
4. Repeat, in turn, with the other children until all the models are "caught".
5. The winner is the child with the biggest "catch" of food models.

GENERALIZATION

Food purchasing and eating behavior may be influenced by food advertising.

TEACHER'S NOTES

TITLE: "What is a Commercial?" Lesson #K-4

OBJECTIVES:

The student will:

- Listen to a recording and identify it as being a set of commercials.
- State that all food advertisements contain a message.
- Describe the message of a food commercial.
- Name advertised foods which she/he has wanted to buy or has asked parents to buy.

MATERIALS:

- Cardboard box (about the size of a TV set).
- 2 Tops of jars, medicine bottles or similar sized objects).
- Tape recording: homemade tape of soundtrack of TV commercials from a children's Saturday morning TV show.
- Tape recorder or player
- Paint, paintbrushes.

ACTIVITY:

1. Before class:

   Cut a rectangle from the bottom of a cardboard box so the box resembles a TV set when put on its side. (The rectangle should be off-center so "dials" can be attached to the right side.) (The jar or bottle tops will be used as dials later.)

2. In class:

   Have children paint the "TV set" and the "dials" (jar or bottle tops). Glue dials to the right side of the "screen". If you have an old antenna to use on top, the set will look more realistic. Use the TV as a "discussion prop"

2. (Cont'd.)...

for this activity. It will be used by students in the follow-up activity: Let's Make Our Own Food Commercials.

3. Begin by asking:
   - How many of you watch TV at home?
   - What programs do you watch?
   - How many of you watch TV on Saturday mornings?
   - Which shows do you like on Saturday mornings?

4. Explain that you are going to play something from the (name of show) show that was on last Saturday. Ask them to listen closely and to see if they can tell you what it is. (Play the tape recorded commercials.)

5. Ask:
   - Does anyone know what I just played? (commercials) If students are having trouble, say:
     - Did it sound like what I just played was part of the (name) show, or did it sound like something that comes on before, after, or in-between TV shows?

6. Explain that commercials are messages about different products or things. We find commercials on TV and on radio. Commercials are messages because they tell us something about different things that are advertised (define). They might tell you about a toy, a restaurant, a food, or many other things. (Give examples of messages.)

7. Rewind the tape until you get to a food commercial. Play it. Ask:
   - What did this commercial tell you about? (name of food)
   - What was the message of the commercial? (e.g. the food is crunchy, you'll love it, go buy it, etc.)
   - Can you think of other food commercials you've seen on TV?
   - What kinds of foods were in the commercials?
   - What was said about them?
   - Did you ever ask your mom or dad to buy a food for you because you saw it in a commercial on TV? If so, which food(s)?
   - What made you want the food?

8. Point out that even though not all TV commercials come right out and say it, they want you to buy the product that is advertised. The message of most TV commercials is "Buy It."

9. Summarize: Sometimes TV commercials try to get us to buy or to want things we don't really need or that may not be healthy for us. We don't have to buy things or want things just because they're on TV. Next time you watch TV, listen for the messages of TV commercials and ask yourself if you really need or want what's on the screen or if the commercial makes you want it.

Note: Save the TV set for "Let's Make Our Own Food Commercials"(follow-up activity).

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GENERALIZATION

Food advertisers use different techniques to influence consumer's food choices.

TEACHER'S NOTES

TITLE: "Let's Make Our Own Food Commercials"

Lesson #K-5

OBJECTIVES:

The student will:

- Create simple commercials for foods through role-playing.
- Identify techniques used by advertisers to influence consumers to buy foods.

MATERIALS:

- Cardboard TV set (from What Is A Commercial? activity)
- Foods (to be used as props - they can be real foods, plastic models or empty boxes and cans)
- Puppets

ACTIVITY:

1. During playtime students will take turns getting behind the "TV screen" to act out or imitate food commercials using a food they have chosen from those available. Shy students might want to use puppets. The TV can be placed on a table.

2. Let the children choose foods for their commercials. Have them recall that food commercials just like all commercials, have a message. You might want to ask them to think about these questions:

- What can you tell us about the food you chose that would make us want to eat it?
- People who make real TV commercials for foods often try to put the answers to some of these questions in their commercial messages. You might want to do that too:
  - How does it taste?
  - How does it look?
  - How does it smell?
  - How does it sound? (e.g. "crunchy")

2. (Cont'd.)...

   - How does it feel?
   - How does it make you feel? (Healthy, full of energy).

3. After each "commercial", ask the "audience":

   - What was the message of that commercial?
   - What kinds of things were said about the food that would make you want to try it?
   - Is the food good for you?

   Optional: If you have real foods on hand, you might want to actually let children taste the foods after they've appeared in a commercial. Recommended foods: fruits, vegetables, cheeses, bread, muffins - maybe canned tuna, etc.

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GENERALIZATION

Energy can be saved and nutrition improved by growing one's own food.

TEACHER'S NOTES

Today many meals are prepared with fast frozen, quick fried, or heat-and-serve convenience products. Food is sold pre-packaged in cellophane, boxed or canned.

To many young children, the origins of these foods are a mystery. By learning how fruits and vegetables grow, and by growing some themselves, children will accept these foods more readily.

TITLE: "Growing My Own Food" Lesson #K-6

OBJECTIVES:

The student will:

- Identify the "basics" needed for growing food.
- State that vegetables from a garden start with seeds.

MATERIALS:

- Pictures of: a sun, water (rain clouds), seeds, soil.
- A variety of vegetable seeds, e.g. carrot, tomato, lettuce, cucumber, green bean, etc.
- Fresh vegetables which correspond with the seeds you've chosen above (i.e. one carrot, a head of lettuce, a tomato, etc.).
- 2 packages of lima beans, 2 packages of corn seeds, clear plastic drinking cups (1 per child), potting soil.

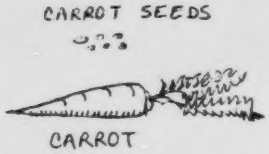
ACTIVITY:

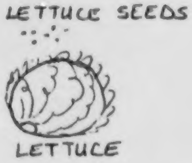
1. Begin by asking children if any of their families grow some of their own food. If so, what kinds of foods are grown? How do they taste?
2. Hold up the pictures of a sun, water, seeds and soil. Ask children to pick which of their 4 pictures are things that are needed for growing food (vegetables). State that all 4 are important and necessary.

3. Tell children that you are going to read a description of each of the four pictures and they (children) are to guess which picture you are talking about.

   - "I give warmth to the ground and cause the little plant to grow up towards me. The little plant's leaves need me to make their food. What am I?" (Sun)
   - "You plant me under the soil when I am very tiny, but I grow very fast (faster than you do!) I come in many different shapes, colors and sizes. Every vegetable you eat starts from me. What am I?" (Seed)
   - "I help little vegetable plants grow big keeping the soil moist. If the soil dried out, the plant would die. What am I?" (Water/Rain)
   - "You plant the little seed in me and later on the roots grow into me, deeper and deeper, to get food & water to help the vegetable plant grow. What am I?" (Soil/Dirt/Ground)

4. Re-emphasize that vegetables start with seeds. Make a display of the variety of vegetable seeds you have collected along with the corresponding full-grown fresh vegetables.





etc.

   Allow children to handle both the seeds and the fresh vegetables.

5. Give each child a clear plastic drinking cup and his/her choice of a lima bean or corn seed to plant. Arrange to have the soil in a bag in a central location and set it on newspapers for easy clean-up. Metal spoons are good soil scoops that children can handle Demonstrate how to plant a seed:

   A. Fill the cup 3/4 full of soil
   B. Place seed in center of soil

   C. Cover the seed with soil. Press down lightly.
   D. Water lightly.

6. The cups can be placed in a sunny window. Assign students to water them periodically. Once the seeds have germinated and seedlings appear, have children measure them once a week.

7. (Opt.) Plan a field trip to a local farmer's market or large vegetable farm/garden.

GRADE 1

Grade 1

NUMBER	LESSON TITLES	GENERALIZATIONS	HEALTH CONTENT AREA
1-1	"Red, White & Blue Foods"	Willingness to try foods leads to a widening variety of food choices.	Physical Health
1-2	"My Growing Tree"	Children grow in the same general way, but at different rates. Good food is necessary for growth.	Physical Health
1-3	"Be a Smart Snacker"	Nutritious snacks can be simple and easy to prepare.	Physical Health
1-4	"Healthy Foods I Like"	Nutritious foods give young bodies nutrients needed to grow.	Physical Health
1-5	"Where Does My Food Come From?"	Plants and animals are two main sources of food.	Physical Health
1-6	"Eating May be a Social Occasion"	Food is often present when people get together socially.	Mental Health (Psychological/ Emotional Aspects of Nutrition)

GENERALIZATION

Willingness to try unfamiliar foods leads to a widening variety of food choices.

TEACHER'S NOTES

This is a fun activity for children because of the element of expressing an opinion. It is also a good way for you to discover your students' food likes and dislikes, and, more importantly, which foods students are unfamiliar with.

TITLE: "Red, White and Blue Foods"

OBJECTIVES:

The student will:

- indicate which foods she/he likes, dislikes, or is unfamiliar with.
- taste a popular (well-liked) food and an unfamiliar one.

MATERIALS:

- circles (3" diameter) of colored construction paper: red, white, and blue (Cut out enough so that each child has one circle of each color).
- food models (Dairy Council) or food pictures (select a total of 15-25 pictures.) Suggested foods include:

  milk
  cheddar cheese
  fruited yogurt
  ice cream
  peanut butter
  pineapple
  strawberries
  cantaloupe
  orange
  apple
  banana
  broccoli
  carrot
  snow peas
  brussel sprouts
  tortilla
  muffin
  cereal (unsweetened, such as corn flakes)
  chicken
  hamburger
  egg

  (Opt.: papaya, mango or kiwi fruit)

  You may think of other nutritious foods - both familiar and unfamiliar to children.

- Foods * (see activity where asterisked)

ACTIVITY:

1. Have your class sit in a circle for this activity (you should be seated with them on the outside of the circle).

2. Give each child 3 paper circles (1 red, 1 white, 1 blue). Tell them that you are going to hold up pictures of food for them to see and they will "vote" for each food in the following manner:

   A. Each student will hold up one circle to indicate his/her "vote" or opinion about the particular food model or picture being shown. The voting system is as follows:

      -A RED circle indicates s/he likes the food.
      -A BLUE circle indicates s/he does not like the food.
      -A WHITE circle indicates s/he is not familiar with the food (i.e. s/he has never seen or tasted it).

      NOTE: If you anticipate the colors may be difficult for the children to keep straight when voting, try the following system:

      Draw a smile on the red circles ☺
      Draw a straight face on the white circles 😐
      Draw a frown on the blue cirlces ☹

      This may help children match their "opinions" with the appropriate colors.

   B. The students should all vote at the same time after each food picture is held up. (You can keep "score" and count the number of red, white & blue "votes" for each food.)

3. After all food models or pictures have been shown, tally the votes and determine which food(s) students liked the best, which the least, and which food(s) most students were unfamiliar with. Share these results with your class. (Students can help you tally votes, if you like.)

*4. The next day, bring into class (for tasting) the students' choice for the "most-liked" food and the "most unfamiliar" food. (Have necessary eating utensils, plates and napkins available). After students have sampled the unfamiliar food, take a vote (a show of hands) as to how many liked this new food. Emphasize that by trying a new food they are widening their variety of food choices - which is a very healthy thing to do! (Offer praise to all children who tried the new food without extreme reluctance).

GENERALIZATION

Children grow in the same general way, but at different rates.
Good food is necessary for growth.

TEACHER'S NOTES

TITLE: "My Growing Tree"

OBJECTIVES:

The student will:

- recognize personal growth by comparing his/her present height and weight to these same parameters measured at birth.
- state that good, nutritious food is necessary for growth.

MATERIALS:

- bathroom scale
- measuring tape
- crayons
- paste
- worksheet-"My Growing Tree" (#1-2)
- letter to parents (sample included with this activity) *This letter should be sent home with students at least one week prior to the activity.
- food models or pictures of nutritious foods (such as: fresh fruits and vegetables, milk, cheeses, meat, fish, poultry, peanut butter, eggs, breads, cereals, etc.)

ACTIVITY:

1. Begin by asking children what happens when they grow? (i.e. how do their bodies change as they grow?). Some responses might be: bones grow larger and longer, muscles get "thicker" and bigger, etc.
2. Ask: "How do we measure growth?" (By measuring how

many inches a child has grown and by recording how many pounds a child has gained over a period of time".)

3. Ask your class, "What is one thing you need in order to grow?" ("Food!") Say, "Let's talk about good foods that help your body grow." Hold up food models or pictures and help children identify individual foods.

   Please make certain to show food models/pictures of the following:

   A. Milk, cheese, (yogurt), other milk products: these foods are important because they help build strong bones and teeth.
   B. Meat, fish, poultry, eggs, dried beans, peanut butter: these foods supply protein and vitamins to help us keep healthy and grow.
   C. Fruits, vegetables (including fresh forms and juices): these foods supply vitamins to help keep us healthy.
   D. Whole grain and enriched bread, cereals, pasta, tortillas: these foods supply vitamins and minerals to keep bodies strong and healthy.

   Summarize by saying: "Eating many of these different foods will help you to grow healthy - that's why we can call them growing foods."

4. Inform the class that everyone will now be individually weighed (using a bathroom scale) and their height measured (using a plastic, metal or cloth tape measure). NOTE: a parent, student teacher or aide would be valuable to help expedite the measuring/recording process.

5. Hand out the worksheet entitled, "My Growing Tree". Explain to children that they are to come up one-by-one to be weighed and measured. Tell students to bring their worksheets with them, along with information furnished by parent(s) regarding their birth weight and length. You and/or your aide(s) should record each child's current height and weight (after measuring), as well as birth weight and length (if provided by the student) on the appropriate lines on the lower left corner of his/her worksheet. To calculate growth:

   1. Subtract birth length (inches) from present height (inches) to obtain inches grown.
   2. Subtract birth weight (pounds and ounces) from present weight (pounds) to obtain weight gained.

   Enter quantities 1 and 2 on the lines on the lower right corner of the worksheet.

6. As individual children are being weighed and measured, the remainder of the class should paste the photos of themselves (brought from home) in the designated squares on their worksheets. (Point out these squares on the worksheet.)

7. Children can use crayons to draw pictures of "growing foods" (discussed earlier in the activity) on their "growing trees".

8. When students have completed their worksheets, have them compare heights, weights (students generally aren't too "weight-conscious" at this age) and growth since birth (in inches and pounds). Who has grown the tallest since birth? These worksheets can be sent home to parents or made into a bulletin board display.

SAMPLE LETTER TO PARENTS

(To accompany lesson "MY GROWING TREE")

Dear Parents of __(Child's name)___,

Our class is studying good nutrition and its relationship to growth. To make the concept of "growth" more tangible to the children, I am asking the parents of each student to furnish the following information:

Your child's weight at birth: ______ lbs. ______ oz.

Your child's length at birth: _______________ inches.

This information will be compared to your child's present height and weight (measured in class) and recorded on a growth worksheet.

In addition, could you please furnish two (2) photographs of your child (these should be wallet size or smaller): one should be a baby picture, the other should be a recent one (perhaps this year's school picture).

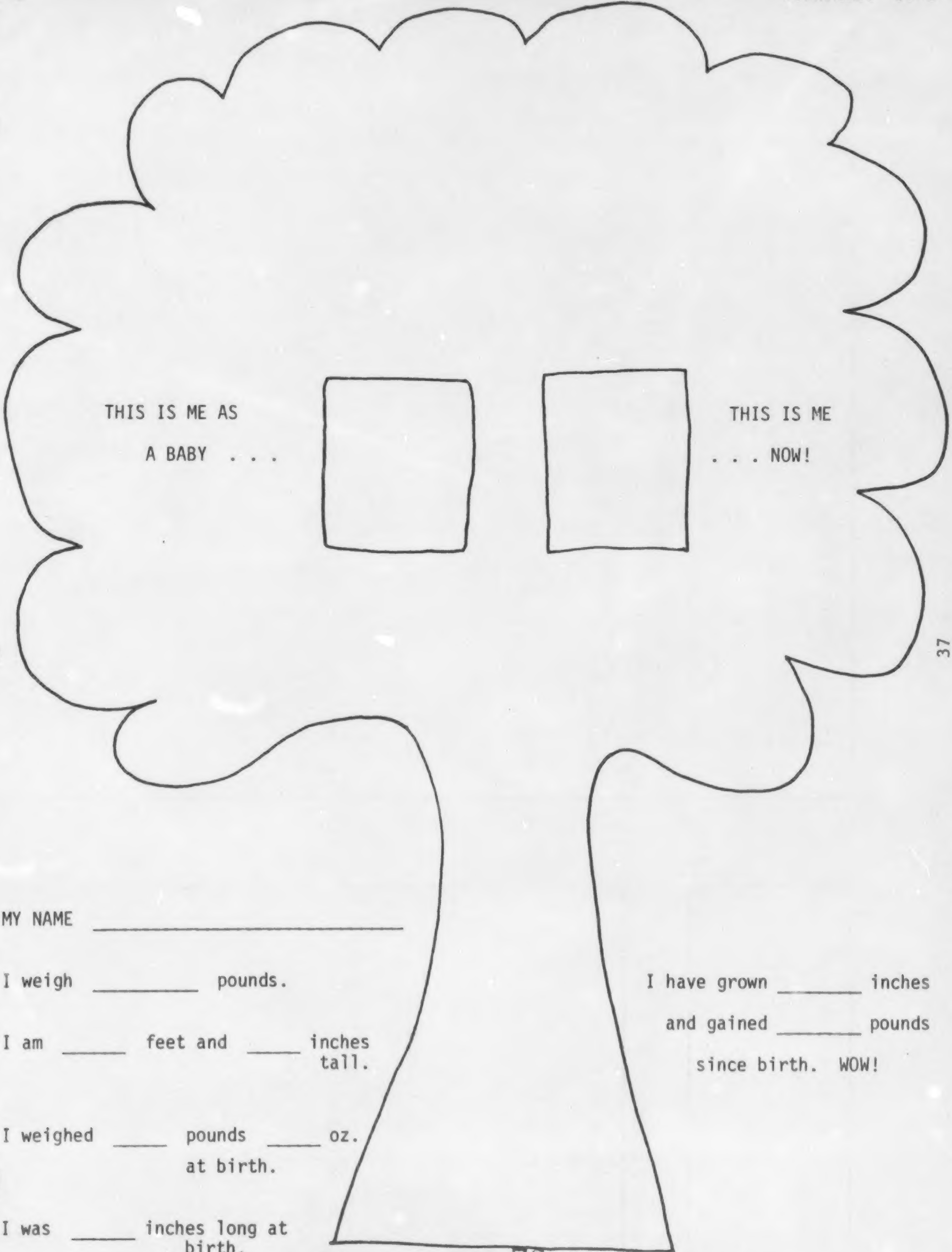
36

Please send the requested information plus the 2 photos to school with ___(child's name)____ on _(Day before activity)__. Thank you for your cooperation!

Sincerely,

(Your name)

Worksheet #1-2



THIS IS ME AS

A BABY . . .

THIS IS ME

. . . NOW!

MY NAME ______________________________

I weigh __________ pounds.

I am _____ feet and _____ inches tall.

I weighed _____ pounds _____ oz. at birth.

I was _____ inches long at birth.

I have grown ________ inches

and gained ________ pounds

since birth. WOW!

MY GROWING TREE

GENERALIZATION

Nutritious snacks can be simple and easy to prepare.

TEACHER'S NOTES

In addition to eating three meals a day, most young children need to snack. Their growing bodies generally require extra food if energy demands are to be met. However, this doesn't mean that children have to snack on sweets, fatty foods, or highly-salted foods.

The "Snacking Mouse" story illustrates what happens to someone who only eats sweets, high-fat and highly-salted foods. The purpose of this filmstrip is to discourage children from excessive snacking, especially to the exclusion of regular meals. It allows you the opportunity to introduce a variety of nutritious snack foods.

Lesson #1-3

TITLE: "Be a Smart Snacker"

OBJECTIVES:

The student will:

- list reasons why smart snacking can be beneficial.
- explain that excessive snacking can "crowd-out" regular meals.
- state that a variety of nutritious foods can be eaten for snacks.

MATERIALS:

- filmstrip "The Snacking Mouse" and accompanying cassette (from The Polished Apple). *Available on loan from CESAs 1, 2, 3, 4, 5, 6, 11, 13, 14, 15, 16, 17, or DPI.
- cassette-type tape recorder
- recipe card for "Bumps on a Log" (#1-3)

ACTIVITY:

1. Begin by asking children some general questions regarding snacking:
   a) What is a "snack"?
   b) When do you snack?
   c) What are your favorite snacks?
2. Ask children if their mothers/fathers have ever warned them not to snack too much before their next meal because this might "spoil" their appetite? Has anyone ever eaten too much of a snack (for example, in the afternoon) and then not been hungry enough to eat a good supper? Explain to your students that they are now going to hear a story about

a little mouse who did just this!

3. Show the filmstrip (with accompanying cassette tape) entitled, "The Snacking Mouse".

4. After the filmstrip, ask children to name some of the snacks that the mouse was eating (potato chips, taco chips, cookies, chocolate cake with icing, candy, and cola). Mention that these snacks are high in sugar, salt and fat which are not healthy snack choices for growing bodies, like theirs.

5. State that snacking isn't all bad - - only if a person eats too much of a poor snack choice. Say that good, nutritious snack choices can help bodies grow by providing vitamins and minerals to build strong bones, teeth, muscles, and skin. Can your students think of some nutritious snacks?

6. Re-wind the filmstrip and turn to the 5th frame from the beginning (the one that says "told by Sterling Holloway"). This particular frame shows pictures of some nutritious snack foods - ask children to identify these. (Included are: cheese, watermelon, canteloupe, apple, banana, orange, grapes, celery sticks, carrots, cucumber chips/coins, peanut butter.) Explain to students that eating healthy snack foods (such as those just listed) can give them the nutrition needed (along with that contributed by regular meals) to help them grow.

7. Students will now make a nutritious snack. Have class prepare "Bumps on a Log" (see Recipe Card).

Recipe #1-3

EQUIPMENT/SUPPLIES:

- Paper plates
- Plastic spoons
- 1 small bowl
- Container with lid (for celery sticks)

NAME OF RECIPE: "BUMPS ON A LOG"

INGREDIENTS:

1 medium-sized jar of chunky peanut butter

1 box of black, seedless raisins - place in a small bowl

* 5" celery sticks (2 per student)

* NOTE: Prepare celery sticks ahead of time and keep in container filled with ice-water to keep crisp. Cover. Water can be drained off just prior to snack preparation.

PROCEDURE:

1. Assemble jar of peanut butter, bowl of raisins, and container of celery sticks on a table or other low-lying work area. Have paper plates and plastic spoons available close by on the table.
2. Explain that each student is allowed just 2 celery sticks.
3. To make "logs", children are to use spoons to scoop out peanut butter from the jar and fill the hollow part of each celery stick.
4. To make "bumps", each child can take 5-6 raisins and stick these on top of the peanut butter "logs".
5. Eat and enjoy! Mention that this is a nutritious snack that students can make at home.

NOTE: Raisins are sticky and can adhere to tooth surfaces. Instruct students to "rinse and swish" their mouth with warm water following the food activity (and any time they can't brush their teeth after eating sticky or sweet foods).

GENERALIZATION

Nutritious foods give young bodies nutrients needed to grow.

TEACHER'S NOTES

TITLE: "Healthy Foods I Like"

Lesson #1-4

OBJECTIVES:

The student will:

- Discuss the general meaning of a "healthy food"
- Identify some of their favorite healthy foods.

MATERIALS:

- Scissors
- Glue
- Magazines with food pictures.
- Large sheets of construction paper (1 per student).
- *Food (*See activity where asterisked).

ACTIVITY:

1. Begin by asking the children what foods are "healthy foods"? (Healthy foods include fresh fruits and vegetables, whole grain breads and cereals, milk and cheese, meat, fish, chicken (and other meats), nuts and beans.) Ask, "Why is it important to eat healthy foods while you're growing?" Healthy foods give a growing body the things it needs for strong bones, muscles and teeth; for soft, smooth skin; and shiny hair.
2. As you pass out sheets of construction paper (1 per student), explain to students that they will be making a collage of their favorite "healthy foods".
3. Arrange to have magazines in a central location. Each child should have his/her own scissors and glue, if possible. Ask children to cut out pictures of healthy foods they like from the magazines. Instruct them to glue these food pictures onto their piece of construction paper. Students should try to cut-out a total of 5-6 pictures.
4. When students have completed this task, allow them to share their collages with one another. As they hold

4. (Cont'd.)...

up their collages for all to see (you may want the class to set cross-legged on the floor in a circle to facilitate this sharing), Ask them:

- What do you like about these foods?
- How does each taste?
- During what meal or snack do you eat these foods at home?
- Can you eat these foods raw? Cooked?
- How many have never tried this food? (Ask this question for each food on the collage.)

*NOTE: The children's responses to this last question may provide you with information regarding what foods students are unfamiliar with. This can lead to a food tasting party of the most unfamiliar foods.

5. The collages can be made into a bulletin board display or sent home to parents.

GENERALIZATION

Plants and animals are the two main sources of food.

TEACHER'S NOTES

Children whose families purchase their food from a grocery store may not be aware of the sources of some foods they eat. This activity introduces children to a simple way of classifying foods - foods from plants and foods from animals.

*The Wisconsin NET Program has created a game entitled, "Down on the Farm" which helps students learn the origins of various commonly-eaten foods. A copy of this game (including objective, materials list, instructions for game assembly and rules for play) is included in the Appendix of this package. It is highly recommended as an adjunct to this activity!

TITLE: "Where Does My Food Come From?" Lesson #1-5

OBJECTIVES:

The student will:

- Identify foods which come from plants and animals.
- Categorize foods according to source.

MATERIALS:

- Food pictures or food models
- Worksheet - "Plant or Animal?" (#1-5)
- Crayons
- Shoe box or coffee can
- Recipe - "Animal Crackers" (#1-5)

ACTIVITY:

1. Begin by asking students to name some of the foods they eat everyday by asking, "Where do you think the foods you eat come from?" Record responses on the chalkboard.

2. State that foods come from 2 sources- plants and animals. Say, "Some foods are made by an animal - for example milk from a cow, and eggs from chickens." Mention that food can be part of an animal - like fish, chicken legs, hamburger from beef cattle. Finally, state that food can be a plant, or part of a plant - such as cherries, lettuce, potatoes, oranges, and rice.

3. Select food pictures or food models that have an obvious plant or animal source. "Shuffle" these together and divide into 2-3 lots. Next, divide students into groups of 10, and give each group one of the lots of food pictures/models. (These pictures/models should be placed in a shoe box or coffee can.)

4. Instruct students in each group to individually choose a food picture/model and then proceed to tell the group whether it is a food from an

4. (Cont'd.)...

   animal or plant. Each student should share his/her reasoning with the group. Explain to students that if they correctly categorize the food, they get to keep the picture/model. If a student is incorrect, s/he returns the food to the box/can. The student who ends up with the most food pictures/models in each group is the winner.

5. After the game, distribute copies of the worksheet, "Plant or Animal"? Make sure each student has a blue and a red crayon.

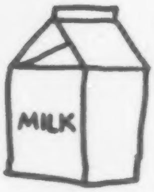
6. Instruct students to draw a red circle around all the foods that come from animals and a blue circle around the foods that come from plants. Allow 5-10 minutes for this.

7. Discuss the worksheets in class. Go over each food and aks students to share their reasoning for its classification.

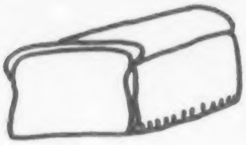
8. Make the recipe, "Animal Crackers". While children are preparing and eating, ask them to identify the animal shapes of the cookie cutters. Ask children to name some foods that come from the animals they identified. You might also ask them to name different types of cheeses - reinforce the idea that all cheeses are made from milk (either cow's milk, goat's milk, even camel's milk in some countries!).

Worksheet #1-5

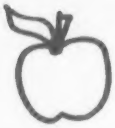
PLANT or ANIMAL?



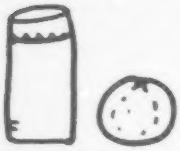
MILK



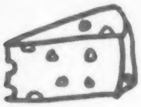
BREAD



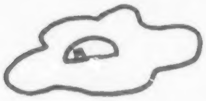
APPLE



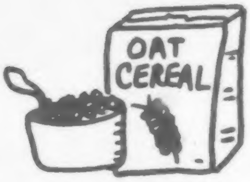
ORANGE JUICE



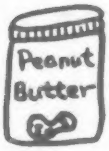
CHEESE



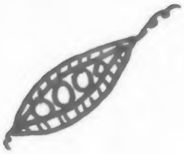
EGG



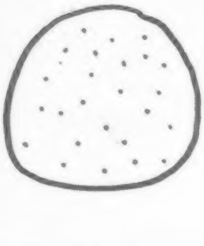
CEREAL


Peanut
Butter

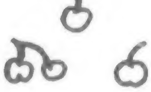
PEANUT BUTTER



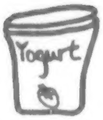
PEAS



TORTILLA



CHERRIES



YOGURT

EQUIPMENT/SUPPLIES:

Animal-shaped cookie cutters

(As many different food producing animals - cows, sheep, chickens, etc., as possible.)

NAME OF RECIPE: "ANIMAL CRACKERS"

INGREDIENTS:

Presliced American cheese (or other cheese)

Whole grain crackers (large) - either whole wheat, rye, or oat.

PROCEDURE:

1. Have children separate cheese slices (1 slice per child).
2. Children can cut their slices of cheese with their choice of cookie cutters, and place on top of a cracker. Eat!
3. Ask children, "Where does cheese come from? Where do crackers come from?"

GENERALIZATION

Food is often present when people get together socially.

TEACHER'S NOTES

TITLE: "Eating May Be a Social Occasion" Lesson #1-6

OBJECTIVES:

The student will:

- Give examples of social gatherings where food is present.

MATERIALS:

- 3" X 5" cards
- Cheese slices (American cheese is good).
- Whole wheat bread (cut into slices)
- Napkins

ACTIVITY:

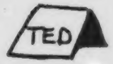
1. Before class: Put the cheese slices on the bread to make open-face sandwiches. Use some 3"X5" cards to make little stand-up cards with your students' names on them. Place the sandwiches on the table. Put 1 card on each one. (See Fig. 1).

2. Hand a card to each student and ask him/her to write his/her name on the card. (Help students form letters if necessary.)

3. Collect the cards and re-distribute them to students so that no student has his/her own name.

4. Explain to students that they will have an opportunity to learn the names of their classmates today and to share a snack with them. Say: We'll also talk about some other times when people share food.

Fig. 1

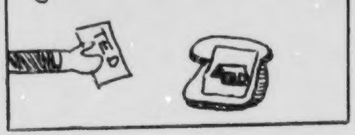


5. Have students bring the cards with them and sit in a circle on the floor. Ask three or four students at a time to go to the table, match the name on their card with the right sandwich and bring it to the owner (Fig.2) The student bringing the sandwich should introduce

5. (Cont'd.)...

him/herself and sit down. Students receiving the food should say, "Thank you".

Fig. 2



6. Tell them that it is polite to wait to eat until all their classmates have been served. When students have been served, ask them to taste the sandwiches. Tell students: It's a good idea to eat SLOWLY and really enjoy each bite.*

7. Ask:
   - Do you like this bread? The cheese? (give names of types of bread and cheese used)
   - Who has had this kind of snack before?
   - Where does cheese come from?

8. Tell students that food is often present when people get together in groups. Ask:
   - Can you think of times when people share food together? (e.g. mealtimes with the family, parties, meetings, picnics, etc.)
   - What kinds of foods do people share at parties? at picnics?
   - What are some examples of good manners to follow when you are eating food with a group of people?
   - Do you think most people like eating in groups better than eating alone? Why?

*Note: This is an extremely simple piece of advice to give to young children - yet it may also be very important. Recent studies have shown that obese (overly fat) children and adults "tend to eat more bites in less time and chew each bite less than their normal weight peers."[1]

Used with permission from Nutrition in the Social Studies, developed by Tanya Wapensky for the Wisconsin NET Program, 1980.

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[1] Drabman, Ronald S., Hammer, David, and Jarvie, Gregory J. Eating Rates of Elementary School Children. Journal of Nutrition Education, Vol. 9, No. 2, April - June, 1977.

GRADE 2

Grade 2

NUMBER	LESSON TITLES	GENERALIZATIONS	HEALTH CONTENT AREA
2-1	"Rise Bright as the SUN with Breakfast"	A wide range of foods can be eaten for breakfast.	Physical Health
2-2	"No Icky, Sticky Snacks for Me!"	Tooth decay is more likely to occur under certain conditions. Certain types of food promote tooth decay. There are many food choices that do not promote tooth decay.	Physical Health
2-3	"Wedgies of Veggies"	Nutritious snacks can be simple and easy to prepare.	Physical Health
2-4	"It takes Four to Roar!"	All living things need food for health, growth, maintenance and repair.	Physical Health
2-5	"Storing the Food We Eat"	Some types of food are relatively perishable and require special storage conditions.	Safety and Consumer Health

GENERALIZATION

A wide range of foods can be eaten for breakfast.

TEACHER'S NOTES

TITLE: "Rise Bright as the SUN with Breakfast!"

OBJECTIVES:

The student will:

- state that it is important to eat something nutritious in the morning.
- become aware of many different types of food that can make a healthful breakfast.

MATERIALS:

- Dairy Council food models (or other pictures of foods) *See Activity Step 3 for list of individual foods.
- SUN design (on 4 separate sheets designed to be pieced together).
- cellophane tape
- crayons
- paper punch
- scissors
- yarn (any color) - pre-cut in 12" lengths (enough for each student to have 5 lengths).
- hooks (optional) to hang mobiles (Christmas ornament-type work well)
- worksheet - "Breakfast Foods" (#2-1)
- construction paper or oaktag; glue

ACTIVITY:

1. Begin by reviewing with students some reasons why they should eat a good breakfast (i.e. to learn, work, and play

better, etc.)

2. Make the children aware that any healthful food can be eaten for breakfast. It is important for the children to realize that they should eat something in the morning since it is a long time between dinner the night before and breakfast the next morning.

3. Spread the food models or pictures listed below on a table (or other area where children can easily see) grouped in the following 4 categories: (Note: You need not have pictures of all foods in every category!)

Protein Choices

Egg-scrambled,
hard-cooked, etc.
Peanut butter
Beef patty
Tuna fish
Refried beans
Roast beef
Fried chicken
Nuts

Grain Choices

Whole Wheat or enriched bread
Cornbread
Bagel
Biscuit
Muffin
Graham crackers
Grits
Rice
Corn tortilla
Waffles/Pancakes
Nutritious cold cereal-
low in sugar
Hot cereal (oatmeal)
Hamburger bun
Pita

Milk Choices

Milk
Yogurt (with fruit)
Cheeses -
American, Swiss
Cheddar, Cottage,
and Other

Fruit & Vegetable Choices

Apple
Banana
Pear
Orange
Canteloupe
Strawberries
Fruit and/or vegetable juices
Fruit nectars
Grapes
Dark green lettuce
Carrot sticks
Celery sticks

3. (Continued) . . .
   - State that protein foods help keep muscles, skin, hair, nails, and blood healthy.
   - State that milk choices will make bones and teeth grow strong.
   - State that grain choices provide energy for work and play.
   - State that fruits and vegetables have vitamins to fight colds, heal cuts and scrapes, and help us to see in the dark.

4. Discuss with the children the idea that a variety of foods contributes to a nutritious breakfast, rather than a single food.

5. Using the food models/pictures, pick out several familiar and unfamiliar combinations of foods that would make a good breakfast. Some examples of less conventional breakfast combinations are:

a) Hamburger on bun
Grapes
Milk

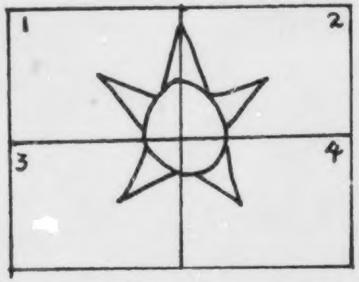
b) Refried beans/cheese
Corn tortilla
Orange

c) Peanut butter sandwich
Banana
Milk

d) Tuna Fish
Bagel
Carrot sticks
Yogurt

6. Have each student decide on a combination of 4 breakfast foods (1 from each category discussed) that they might like to try. Distribute worksheet entitled "Breakfast Foods", Instruct students to draw the 4 breakfast foods they have chosen on the worksheet (one food should be drawn in each rectangle on the worksheet).

7. Explain to students that they will be making a mobile to hang from the ceiling. Give each student a copy of the SUN design (on 4 separate sheets). The SUN design should be pieced together as follows: (pages are numbered for easy assembly; use tape to connect the sheets of paper together)

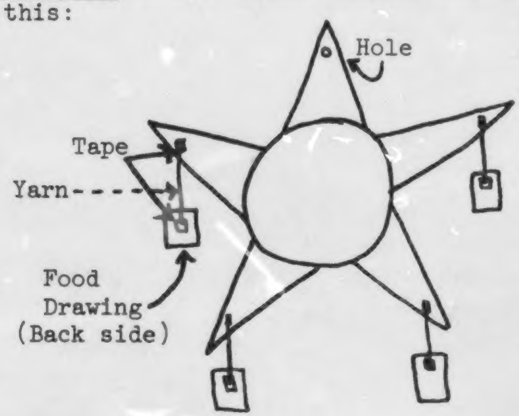


8. Directions for the construction of the mobile are as follow:

   a) Have children use scissors to cut out the SUN design - (once it has been taped together).
   b) Instruct them to glue their cut-out SUN design on yellow construction paper or oaktag. Use scissors to cut out this design. (This will make the mobile sturdier and less likely to tear.)
   c) Children should color a face on their SUN with crayons.
   d) Each child should bring his/her SUN to you to have a hole punched in the designated circle on one of the SUN's "rays" for hanging purposes.
   e) Distribute 5-10" lengths of pre-cut yarn to each child. Have children attach their 4 food drawings to the SUN in the following manner:

      1) Have children use scissors to cut out each food drawing from their worksheets.
      2) For each food drawing: take 1 piece of yarn and tape one end to the back side of the food drawing and the other end to the back side of one of the SUN's "rays". Instruct students not to tape a food drawing on the one ray that has been hole-punched.

   The back view of the mobile should look something like this:



   f) To hang mobiles: Have each child take his/her remaining 10" length of yarn and insert one end through the punched hole in the ray of his/her "SUN". Have them loop this end of yarn up and then tie a knot to the main strand. (Fig. A).

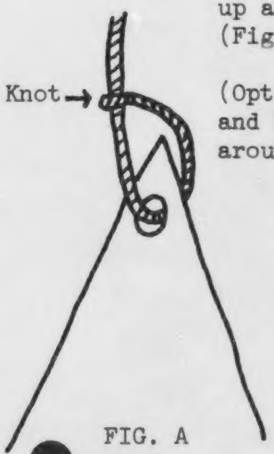


FIG. A

   (Opt.) Distribute ornament hooks (1 per child) and have students tie the free end of the yarn around the hook. (Fig. B)

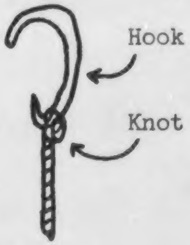
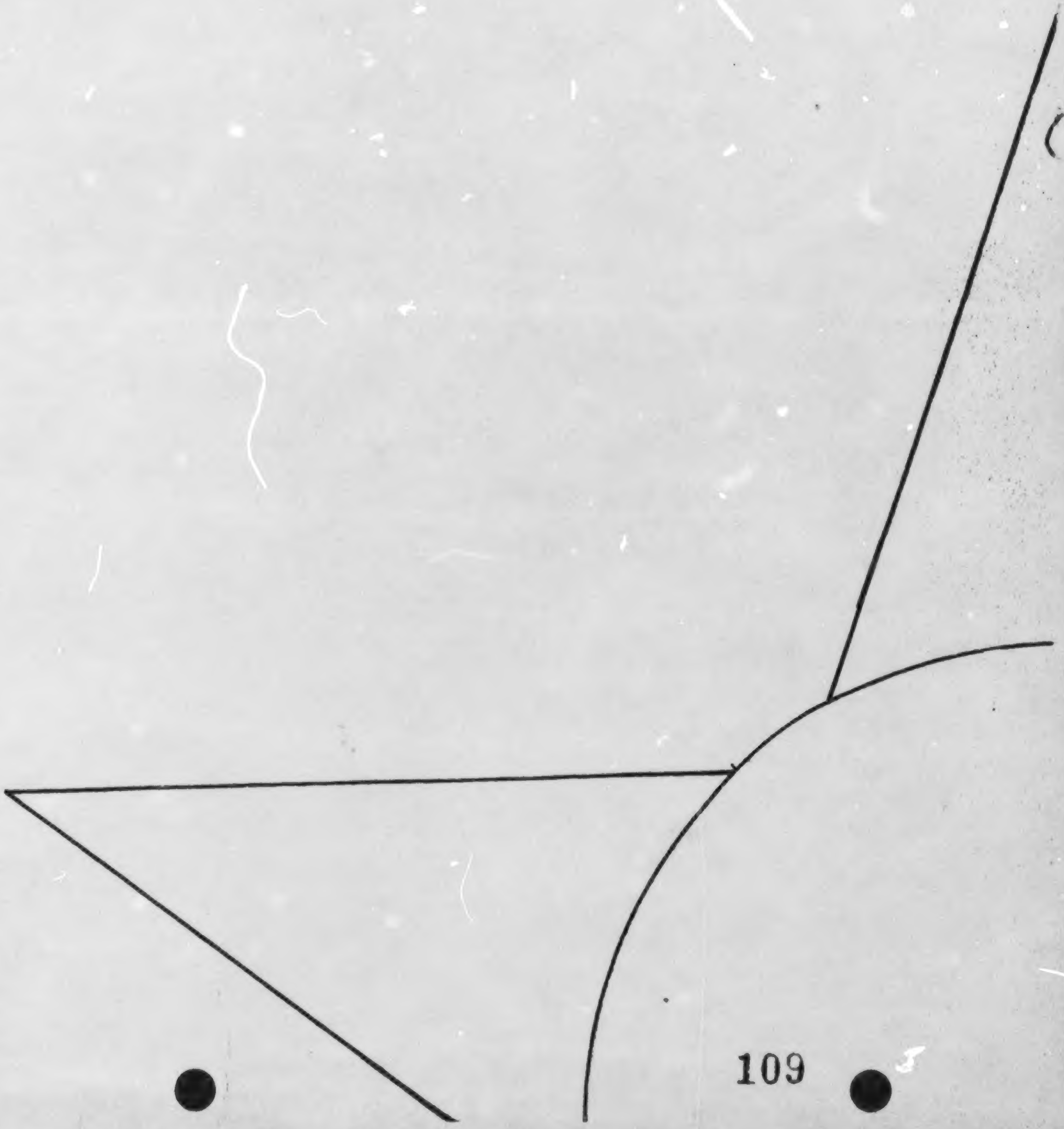


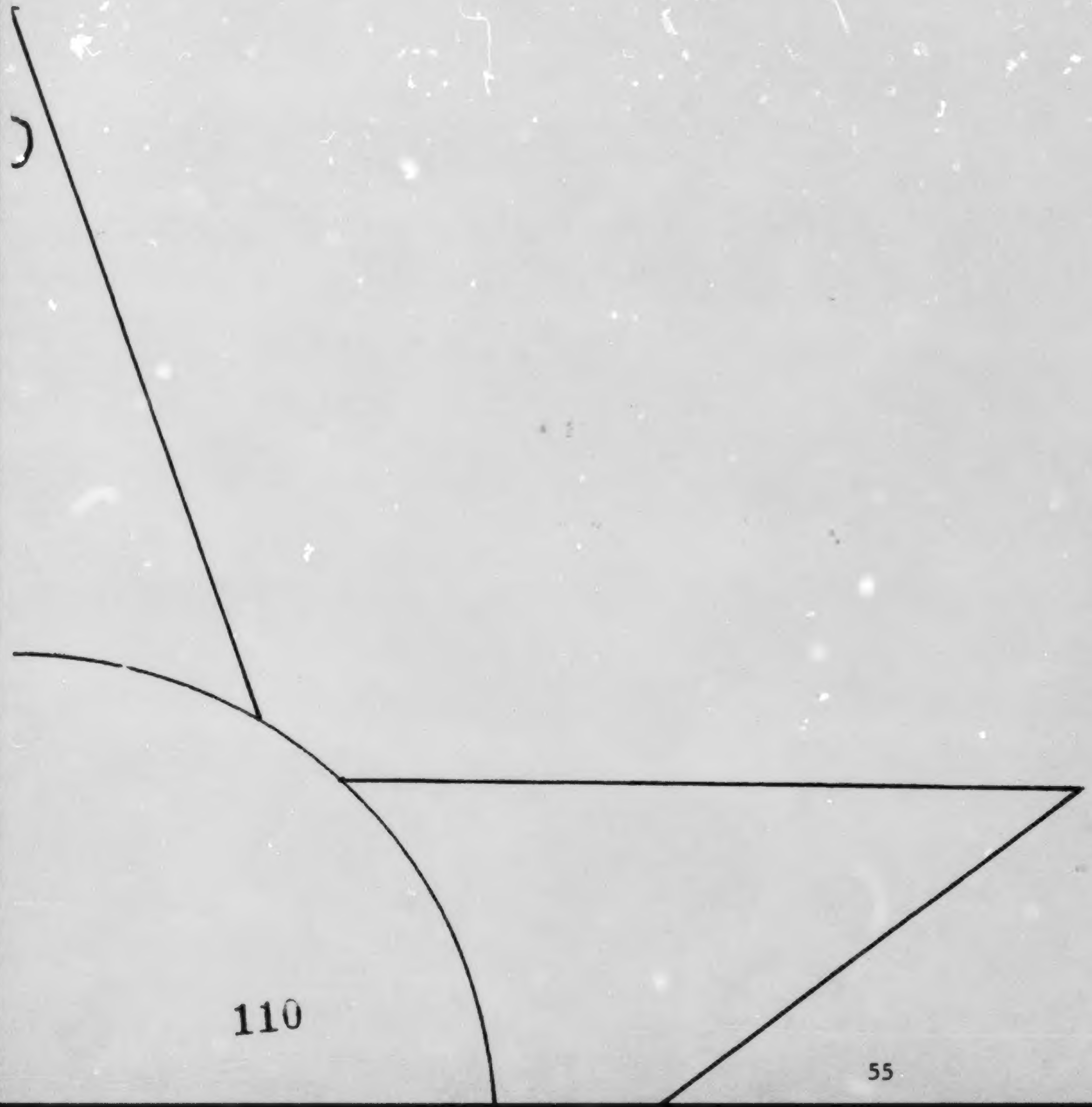
FIGURE B

Mobiles are now ready to hang!
Note: Mobiles can also be tied to lights, etc. (without hooks).

9. Suspend mobiles from the ceiling (lights) in your classroom, or around the sides of the room. Give your students ample time to look at each other's mobiles and to take note of the different breakfast combinations. Finally emphasize the variety of combinations that people can eat for breakfast!

SUN DESIGN for Lesson #2-1
(Use pages 1-4 to piece design together)





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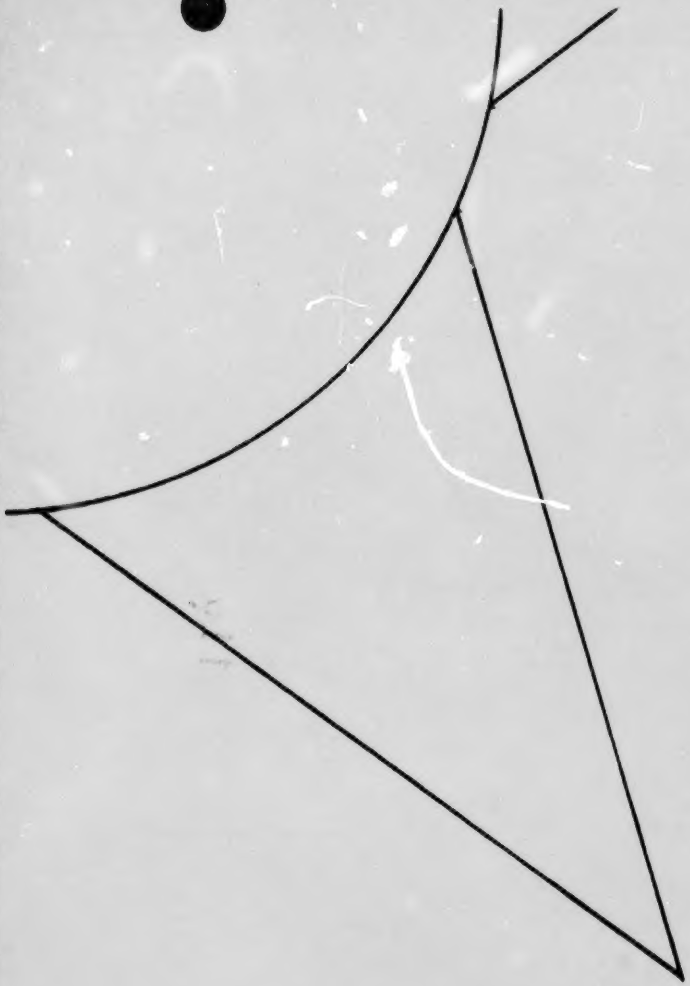

Worksheet #2-1

BREAKFAST FOODS

GENERALIZATION

Tooth decay is more likely to occur under certain conditions. Certain types of food promote tooth decay. There are many food choices that do not promote tooth decay.

TEACHER'S NOTES

Americans, on the average, eat over 2 pounds of sugar a week. The price of eating sugary foods is high. Over 5 billion dollars a year are spent on dental care in the U.S.

Eight out of ten children have dental caries (cavities). These children often have a very high sugar intake. Children can actively participate in improving their dental health by reducing the amount of sugar in their diets.

Lesson #2-2

TITLE: "No Icky, Sticky Snacks for Me!"

OBJECTIVES:

The student will:

- observe the effect of an acid on tooth enamel
- identify one characteristic of certain foods that promotes tooth decay (i.e. "sticky")
- participate in preparing and eating a low-sugar snack

MATERIALS:

- one bottle of soda pop } Tooth Experiment
- one tooth } Tooth Experiment
- "Dixie" paper cups - 1 per student
- Packages of "Life Savers" roll candy - enough to give each student one "Life Saver"
- one inch chunks of celery or carrot (one per student)
- recipe card - "Toothpick Tooth Treats" (#2-2)

ACTIVITY:

1. Tooth Experiment: The next time a student loses a tooth, request to use it for this experiment. Drop the tooth into a bottle of soda pop. Have students label and date the bottle. Students shall visually inspect the tooth twice a week (for 2-3 weeks) by removing the tooth from the bottle, examining it, and returning it to the soda environment.

2. Explain to students that this experiment demonstrates how acid can dissolve the outer surface (enamel) of the tooth. Tell the class that sugary foods combine with the "fuzzy coating" (plaque) on their teeth to form acids in their mouths. These

acids then attack the outer surface of the tooth (similar to the tooth experiment) resulting in cavities and trips to the dentist.

3. Provide students with "Dixie" cups and instruct them to fill their cups ½ full with warm water from the faucet. Then hand out one (1) Life Saver and one 1" chunk of celery or carrot to each student and instruct class not to eat these - they are for an experiment.

4. Instruct students to drop their Life Saver into the Dixie cup ½ full of warm water (this serves to simulate a "mouth" environment) and let the candy dissolve for 2-3 minutes. After this period of time, have students pick out the Life Saver from the water and feel it between their fingers. Ask students how they would describe it ("sticky", "gooey").

5. Explain to students that candies like Life Savers, lemon drops, gum drops, "jawbreakers", caramels, toffee, "slow-pokes", etc., are very unhealthy for their teeth for 2 reasons:
   a) these candies are sticky and some of the candy remains on or in-between teeth even after it has been eaten, and
   b) these candies dissolve very slowly (as students can document from the Life Saver experiment) and as a result, the sugar stays in contact with their teeth for a long period of time.

6. Repeat the experiment by having students dispose of their Life Savers, empty the water in their paper cups, and replace it with fresh warm water. Next hand out the 1" chunks of celery or carrot (1 per student). Each student should add their vegetable chunk to the water in the cup and again wait 2-3 minutes. Have students pick out the vegetable chunk from the cup and feel it between their fingers. Ask students if there is a difference between how the vegetable chunk feels and how the Life Saver felt. State that carrots/celery are low-sugar foods and not sticky. In fact, these foods can even help "clean" teeth.

7. Tell the class that they are now going to prepare a low-sugar snack called "Toothpick Tooth Treats".
   (See recipe card for the same.)

EQUIPMENT/SUPPLIES:

Toothpicks

3 bowls or containers

Paper plates

Napkins

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NAME OF RECIPE: "Toothpick Tooth Treats"

INGREDIENTS: (Prepare ahead of time and refrigerate)

1 lb. mild cheddar, brick, colby or Jack cheese (cut in 1/2" cubes)

One of the following combinations:

{cherry tomatoes
green pepper strips} or {green seedless grapes
apple chunks}

or {2 - 1 lb. cans juice - pack pineapple chunks
2 pints fresh, hulled strawberries (sliced in half, if large)}

PROCEDURE:

1. Place the cheese cubes and your choice of the fruit or vegetable combination in separate bowls or containers and line them up buffet-style on a table.
2. Instruct students to "string" their own kabobs by alternating pieces of cheese and fruits/vegetables on toothpicks. (Demonstrate this for them.)

   NOTE: Make certain children don't run around with toothpicks in their mouths and emphasize that they not attempt to swallow or chew the toothpick itself.

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GENERALIZATION

Nutritious snacks can be simple and easy to prepare.

TEACHER'S NOTES

Lesson #2-3

TITLE: "Wedgies of Veggies"

OBJECTIVES:

The student will:

- recognize that fresh, raw vegetables make excellent snacks.
- identify by name two vitamins (A and C) found in vegetables and briefly state an elementary function of each.
- taste and rate a variety of fresh, raw vegetables.

MATERIALS:

- You will need to purchase an assortment of 4-8 fresh, raw vegetables chosen from the following list: (Note: Prepare vegetables in the form stated and allow 1 portion, i.e. one carrot stick per child, for sampling.)

carrots	carrot sticks (4" long)
celery	celery sticks (4" long)
cucumber	cucumber coins (slices)
broccoli	flowerets (small)
cauliflower	flowerets (small)
green pepper	strips
snow peas	whole
mushrooms	whole or sliced
turnip	sticks (2", peeled)
zucchini	sticks (4", unpeeled)

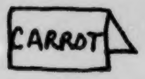
These can be prepared ahead of time and refridgerated at school. *Each vegetable should be in a separate container.

- Small paper plates, napkins

MATERIALS: (Continued)

3" x 5" plain index cards (1 for each vegetable being sampled)

Use these to make vegetable "I.D." cards as follows: 1) Fold index card in half. 2) Write the name of the vegetable on the front. (Make one "I.D." card for each vegetable being sampled.)



Worksheet: "Vegetable Score Card" (#2-3)

Note: You will need to write in the names of the vegetables to be sampled on the lines provided on the worksheet prior to xeroxing!

ACTIVITY:

1. Begin by telling the class that today they are going to sample a variety of raw vegetable snacks. Ask your students if any of them have ever eaten any raw vegetables? If so, which ones?

2. Using a table or low-lying work area, display a row of vegetable snacks in their separate containers. Place the appropriate vegetable "I.D." card in front of each container.

3. Distribute "Vegetable Score Cards" to each child prior to sampling. Explain the scoring procedure aloud:

   A. After tasting each new vegetable snack, each child should place a ✓ mark on the line in front of the face on the score card which describes how s/he feels about the snack:

   ___☺ I liked it.

   ___☹ I did not like it.

   B. Everyone will sample and score each raw vegetable together at the same time.

4. While sampling raw vegetables, mention that these foods are good sources of vitamins A and C. Tell students that Vitamin A makes eyes healthy. Vitamin C will help cuts and scrapes heal faster.

5. On the blackboard, chart the entire class' ratings for each of the raw vegetable snacks sampled as follows: (allow one column for each different vegetable snack)

CARROT		GREEN PEPPER		BROCCOLI		ETC.
☺	☹	☺	☹	☺	☹	
~~1111~~	11	~~1111~~	111	111	~~1111~~	
~~1111~~		~~1111~~			~~1111~~	

6. Discuss the results. Which vegetable snacks were the most popular? Why? Which vegetable snacks were the least popular? Why? (Have children describe taste, texture–crunchy, crisp, smooth, appearance).

Worksheet #2-3

SCORE CARD.

NAME OF VEGETABLE:

1. ____________________
☺ I LIKE IT.
☹ I DO NOT LIKE IT.

2. ____________________
☺ I LIKE IT.
☹ I DO NOT LIKE IT.

3. ____________________
☺ I LIKE IT.
☹ I DO NOT LIKE IT.

4. ____________________
☺ I LIKE IT.
☹ I DO NOT LIKE IT.

5. ____________________
☺ I LIKE IT.
☹ I DO NOT LIKE IT.

6. ____________________
☺ I LIKE IT.
☹ I DO NOT LIKE IT.

7. ____________________
☺ I LIKE IT.
☹ I DO NOT LIKE IT.

8. ____________________
☺ I LIKE IT.
☹ I DO NOT LIKE IT.

GENERALIZATION

All living things need food for health, growth, maintenance and repair.

TEACHER'S NOTES

Copies of the story booklet, Dandelion - The Lion Who Lost His Roar, can be ordered from:

DANDELION PRESS
4165 Fowler Drive
Bellbrook, OH 45305

(Quantity prices available.)

TITLE: "It takes Four to Roar!" Lesson #2-4

OBJECTIVES:

The student will:

- State 3 reasons why s/he needs food.
- Become familiar with food group classifications.
- List 4 food groups and name 3 different foods in each group.
- Help prepare and sample a snack which contains foods from four food groups.

MATERIALS:

- Story booklet, Dandelion - The Lion Who Lost His Roar, by Rose Stoia (available on loan from CESAs 1, 2, 3, 11, 12, 14, 15, or DPI).
- Handout - "It takes Four to Roar" (#2-4)
- Crayons
- Recipe - "Four - Tune Crackers" (#2-4)

ACTIVITY:

1. Begin by asking students why they need to eat food. State that foods provide our bodies with the things they need to grow, to heal cuts and bruises, and to stay as healthy as possible.
2. Tell the class that they will now hear a story about what happens to a lion who did not eat healthy foods.
3. Read the story, Dandelion - The Lion Who Lost His Roar.
4. After reading the story, ask students to name the four food groups (bread-cereal, fruit-vegetable, protein group, and milk group). Ask students to name examples of foods in each group.

5. Distribute copies of the handout, "It takes Four to Roar!".

6. Identify the food groups on the handout. Instruct students to color the foods on the sheet and then circle their favorite food in each group.

7. After students have completed coloring their handout, have them discuss their favorite foods in each food group.

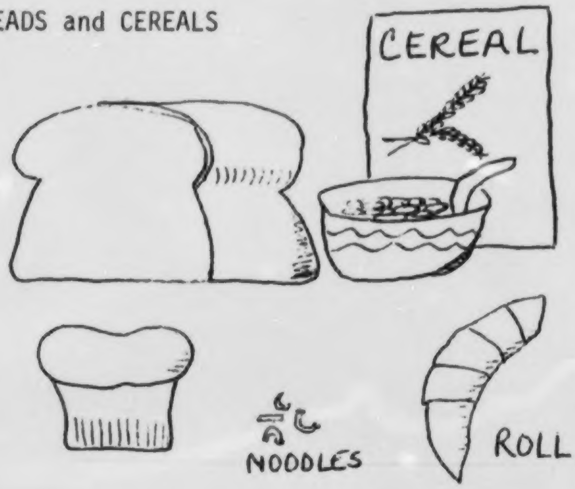
8. Tell your class that they will now make and sample a snack that has foods from all 4 food groups. (Prepare recipe, "Four - Tune Crackers"). As the class proceeds to make the snacks, make sure all ingredients are identified and classified into the proper food groups.

Handout #2-4

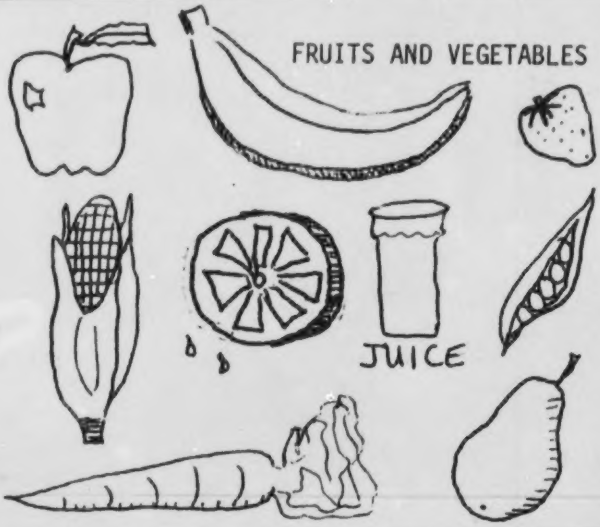
IT TAKES FOUR TO ROAR!

1. Color the foods in each of the four food groups.
2. Draw a circle around the food you like best in each group.

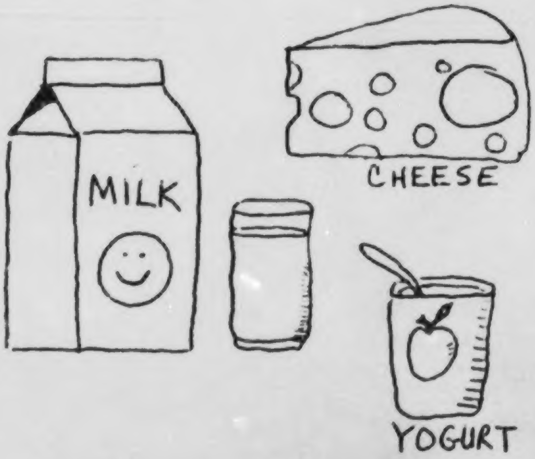
BREADS and CEREALS


CEREAL
NOODLES
ROLL

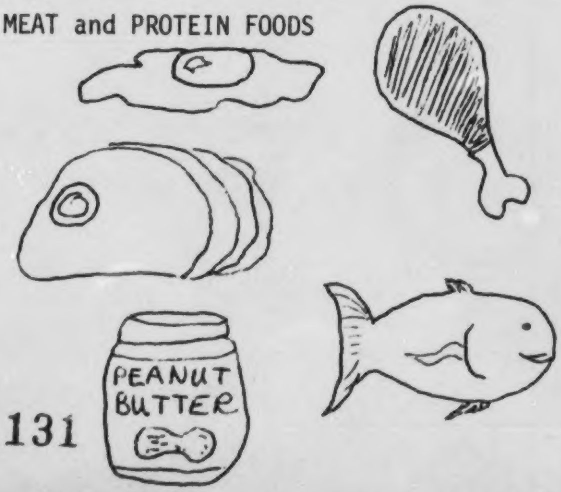
FRUITS AND VEGETABLES



MILK


MILK
CHEESE
YOGURT

MEAT and PROTEIN FOODS


PEANUT BUTTER

Recipe #2-4

EQUIPMENT/SUPPLIES:

Knives
Cutting surfaces (boards)
Serving trays or platters
Small paper plates
Napkins
Spoon (for peanut butter)

NAME OF RECIPE: "Four-tune Crackers"

INGREDIENTS:

Whole grain crackers (or slices of whole grain bread)
1 cucumber, sliced
1 pint cherry tomatoes, halved
5 apples, cut in wedges
Bananas, sliced
1 jar peanut butter
5-6 hard-cooked eggs, sliced
8 oz. Colby cheese
8 oz. Mild cheddar cheese } cubed

PROCEDURE:

1. Wash produce ahead of time. Slice produce, hard-cooked eggs and cube cheese. Arrange each ingredient on trays.
2. Group ingredients on the table by food groups and label each accordingly.
3. Instruct children to select at least one food from each group to make a "Four-Tune Cracker".
4. Eat and enjoy!

*NOTE: Any nutritious foods from the four food groups can be substituted for any of the ingredients listed above.

GENERALIZATION

Some types of food are relatively perishable and require special storage conditions.

TEACHER'S NOTES

It is important to remember that any food can deteriorate if stored under proper conditions too long - even in the freezer!

It should also be noted that meats can be stored in the refrigerator for 2-3 days or in the freezer, if longer storage is anticipated.

TITLE: "Storing the Food We Eat" Lesson #2-5

OBJECTIVES:

The student will:

- Understand the importance of proper food handling.
- Identify proper methods of storing foods.
- Recognize that one sign of food spoilage is the growth of molds.

MATERIALS:

- One slice of moldy bread - (to "prepare" this in advance: place 1 slice of bread in a plastic bag, add 1 T. of water, and store in a warm dark place for approximately 7 days)
- Worksheet - "Where Food is stored In My Home" (#2-5A)
- Worksheet - "The Right Way to Store Food" (#2-5B)
- Scissors
- Glue, paste

ACTIVITY: (2 Days)

Day 1:

1. Introduce the activity by discussing food spoilage. Ask: "How does spoiled food look?" Explain that sometimes spoiled food looks "okay" (such as egg salad left out overnight), but could contain dangerous germs!
2. Show the class the slice of moldy bread. (Pass it around to students). As the students are examining the bread, have them describe the mold. (Molds are woolly or furry growths, often greenish or whitish in color.)

3. Mention that molds appear on foods - (especially bread and cheese) when they are decaying. Molds are germs that grow in warm temperatures where it is wet and dark.

4. Ask: "Has anyone ever eaten spoiled food? If so, what happened to you? Explain that if food is not stored properly, it can spoil and may cause illness (vomiting & diarrhea) if eaten. Emphasize that it is therefore very important that we learn how to properly store foods to keep them from spoiling.

5. Ask students to name 3 places where food is stored in their homes. (Freezer, refrigerator, cupboard shelves/pantry)

6. Hand out copies of the home worksheet, "Where Foods are Stored in My Home". Go over the worksheet instructions with students and request that the sheets be completed at home that night and brought back to school the following day to be discussed.

DAY 2:

7. Write the following 3 categories on the chalkboard: freezer, refrigerator, and shelf.

8. Go around the room and ask each student to name 2 foods (from his/her worksheet) that are stored in the freezer, refrigerator and shelves in his/her own home. Write these foods under the appropriate categories as you go along.

9. After each child has contributed, summarize the findings on the chalkboard by saying that:

   A. The freezer holds frozen foods - such as ice cream, frozen fruits and vegetables; frozen meats, fish and poultry; frozen fruit juice cans; popsicles; and ice cubes!

   B. The refrigerator holds foods that would spoil if they were sitting out at room temperature for a long time. These foods include: milk; cheese; yogurt; butter/margarine; fruit juices; fresh fruits and vegetables; fresh meats, fish and poultry; hot dogs and lunch meat; eggs; open jars of jams and jellies; open jars and bottles of mayonnaise or salad dressings.

   C. Foods that are stored on shelves in a cupboard or pantry include: bread & cereals; noodles and macaroni; canned fruits and vegetables; canned soups; canned tuna fish; cooking oil; peanut butter; and other food items in unopened cans.

10. Pass out copies of the second worksheet entitled, "The Right Way to Store Food." Go over the directions with your class and allow 15-20 minutes for the completion of the worksheet. Review correct answers.

WHERE FOOD IS STORED IN MY HOME

A. When you are home, open your refrigerator and write down five foods you find in there:

Draw pictures of some of these foods.

1. ______________________________
2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________

B. Open your freezer and write down five foods you see in there:

Draw pictures of some of these foods.

1. ______________________________
2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________

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C. Open your kitchen cupboards or look in your food pantry. Write down five foods you find here:

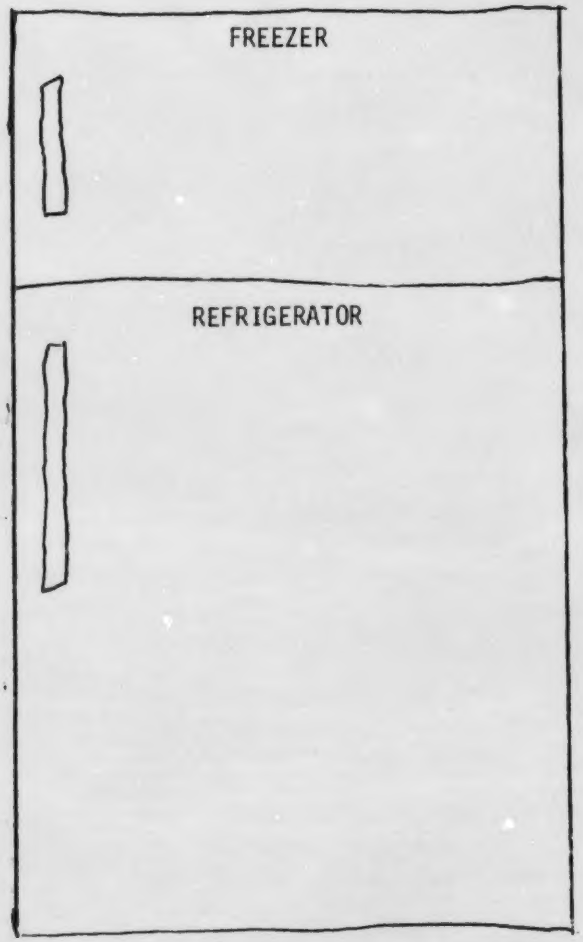
Draw pictures of some of these foods.

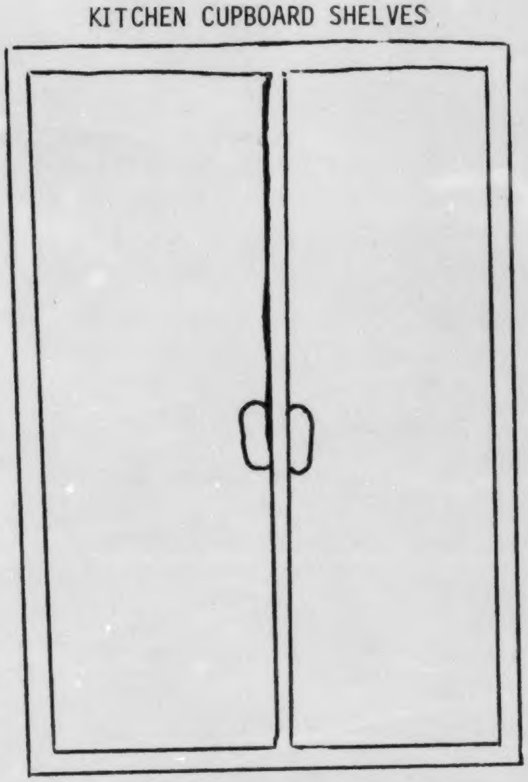
1. ______________________________
2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________

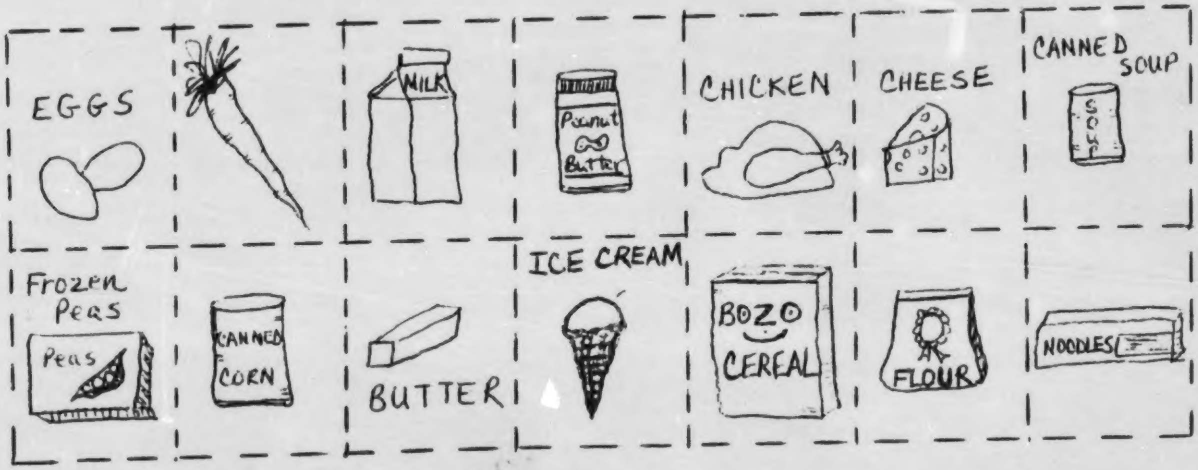
The Right Way to Store Food

Cut out the food pictures below and glue or paste them where they should be stored.

NAME: ______________________________


FREEZER
REFRIGERATOR


KITCHEN CUPBOARD SHELVES


EGGS
MILK
Peanut Butter
CHICKEN
CHEESE
CANNED SOUP
SOUP
Frozen Peas
Peas
CANNED CORN
BUTTER
ICE CREAM
BOZO CEREAL
FLOUR
NOODLES

GRADE 3

Grade 3

NUMBER	LESSON TITLES	GENERALIZATIONS	HEALTH CONTENT AREA
3-1	"Happiness is...a Peanut Butter Sandwich"	Food acquires meanings which reflect basic human needs and wants.	Mental Health (Psychological/ Emotional Aspects of Nutrition)
3-2	"Watching T.V. Commercials"	Food purchasing and eating behavior may be influenced by food advertising.	Mental Health (Psychological/ Emotional Aspects of Nutrition)
3-3	"Better 4-U Beverages"	Nutritious snacks contribute to a person's daily nutritional needs.	Physical Health
3-4	"Build a Better Biter"	Certain types of food promote tooth decay. There are many food choices a person can make that do not promote tooth decay.	Physical Health
3-5	"Introducing Foods to Our Friends"	Peers often influence the food choices we make.	Mental Health (Psychological/ Emotional Aspects of Nutrition)
3-6	"More or Less Energy?"	The body requires energy from food for growth, maintenance, work and play.	Physical Health
3-7	"Linking the Food Chain"	The process of transferring energy from the sun through a community of plants and animals in a step-by-step series of eating and being eaten is called the food chain.	Community and Environmental Health
3-8	"Brag About Your Brown Bag"	Foods selected from the four food groups provide a nourishing lunch.	Physical Health

GENERALIZATION

Food acquires meanings which reflect basic human needs and wants.

TEACHER'S NOTES

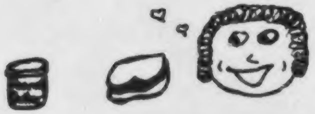
Food meanings is a good topic to share with parents. Make sure students take completed worksheets home - their answers to worksheet questions may serve to heighten parents' awareness of ways in which they are "using" food.

TITLE: "Happiness is ... a Peanut Butter Sandwich!"

OBJECTIVES:

The student will:

- associate different foods with different feelings/emotions.
- recognize that food satisfies needs other than just physical hunger.



MATERIALS:

- worksheet - "What Food Means to Me" (#3-1)
- crayons

ACTIVITY:

1. Distribute worksheet entitled "What Food Means to Me". Have students complete the exercise (estimated time: 20-30 min.).
2. After students have completed their worksheets, hold a "sharing session". Go through each question separately and give each student an opportunity to respond with his/her answer. Why do they choose these particular foods?
3. Ask students if they ever consider nutritional value of foods in these situations. Sometimes food provides more than nutrients.
4. Conclude that different foods mean different things to different people.
5. (Opt.) Compile a "Happy Food Cookbook" by requesting that each student submit a recipe for his/her favorite nutritious "Happy Food". (These may be snacks, sandwiches, main dishes, beverages, etc.). (Cookbooks could be given as Mother's or Father's Day gifts, etc.)

WHAT FOOD MEANS TO ME!

Please fill in the blanks below:

1. Foods that make me happy are: ______________________________
   (Draw some of these foods here) ______________________________
   ____

2. When I get together with my friends, we like to eat these foods:
   (Draw some of these foods here)
   ____
   ____
   ____

3. If I get sad or bored, I will eat these foods: (Sometimes I may not want to eat anything at all.) (Draw some of these foods here)
   ____
   ____
   ____

4. One way my Mom (or Dad) shows me that s/he loves me is by making these foods for me to eat: (Draw some of these foods.)
   ____
   ____
   ____

5. When I get sick, eating these foods can make me feel better:
   (Draw some of these foods here)
   ____
   ____
   ____

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GENERALIZATION

Food purchasing and eating behavior may be influenced by food advertising.

TEACHER'S NOTES

The average child watches 25-30 hrs. of television per week. In one year a child can potentially see 8,500 to 13,000 food and beverage commercials. Between 400-600 million dollars a year is spent on television advertising of food and drink directed at children. The largest component of advertising directed specifically at children is for sugared foods such as pre-sweetened cereals, candy and cookies. Excessive consumption of sugar contributes to the development of tooth decay and possibly to other health problems such as obesity. It may also lead to a child's long-term preference for sugar in the diet at the expense of nutritious foods. Television advertising for sugared, salted and fatty foods may discourage a child from learning and practicing sound nutritional habits.

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If you wish to become more involved contact: Action for Children's Television, 46 Austin St., Newtonville, MA 02160.

TITLE: "Watching T.V. Commercials"

OBJECTIVES:

The student will:

- Make a bar graph to determine the kind and number of foods advertised during a 1/2 hour (Saturday morning) children's T.V. show.
- Compare the nutritional characteristics and quality of foods commonly advertised on children's T.V. shows vs. foods which are almost never advertised.

MATERIALS:

- Worksheet entitled: "Watching T.V. Commercials" (#3-2)
- Pencils
- Crayons, colored pencils or markers.

2 PART ACTIVITY: (2 Days)

Day #1:

1. Begin by explaining to students that you would like to have them watch a 1/2 hour Saturday morning television program for this lesson. Tell them that T.V. advertising influences us to buy the things (such as foods) that are advertised. State that they will see what kinds of foods are advertised on T.V. and which ones usually are not.

2. Hand out copies of the worksheet entitled, "Watching T.V. Commercials". Point out that it's in bar graph form. The worksheet shows different categories of foods (which might be advertised on TV) on the bottom.

2. (cont'd.) . . .

Read the names of these food categories aloud and ask: "If you were to watch TV on a Saturday morning, which of these foods do you think would be advertised most?, least?" (You may want to record students' answers for future reference.)

3. Ask students to take their worksheets home and decide on a 1/2 hour Saturday morning T.V. show to watch. They are to count the number and kind of food commercials shown during the program of their choice by marking an "X" in a box (starting with box #1 on the worksheet), above the kind of food they see advertised on T.V. each time that kind of food is advertised. For example, a student will mark an "X" above the candy category when s/he sees a commercial for a chocolate bar.

*Perhaps students could explain this activity to their parents and solicit their help in counting commercials.

Day #2:

1. Give students a chance to count and record the number of "X" marks on the different bars in class. They may want to color up to the number of each kind to make it look like a real bar graph. (A different color for each food category should be used.)

2. Prepare a "master list" of the T.V. programs (1/2 hour in length) viewed by students on the blackboard to aid in summarizing results. Name each show and ask students who watched it to answer these questions:
   - "Which kinds of foods were advertised most?, least?"

3. Record their answers for each T.V. program. Overall, which types of foods were advertised most frequently? least frequently? (i.e. never?)

4. Compare what students predicted before the activity (Day #1) with their results.

5. Discuss the characteristics of the foods which were advertised the most. Ask:
   - "What did you notice about the foods that were advertised the most vs. those which were advertised the least?
   - "Are highly advertised foods usually packaged or unpackaged?"
   - "How do they taste?" (Students might find that highly advertised foods tend to be those which are very sweet due to added sugar. If so, ask if someone can tell you what health problem can develop if a person eats too many sugary foods? Ans. tooth decay).
   - "What did you notice about the foods that were advertised the least?

6. Optional:

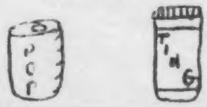
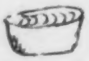
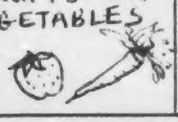
Is your class familiar with nutrients? If so, you might point out that foods which tend to be highly advertised are very often the foods which do not supply people with many nutrients except calories ("empty calorie foods"). Examples include: Soda, potato chips, corn chips, candy, etc. Some of the foods which are rarely advertised are those which supply us with many different nutrients for health. Example: Broccoli - supplies Vit. A (for healthy eyes and skin), Vit. C (for healthy gums and skin), and Calcium (for bones and teeth).

WATCHING T.V. COMMERCIALS!!

*The television program that I watched was: ______________________________.

*How many food commercials were on T.V. during the half-hour children's program you watched on Saturday morning? ____________________.

*Keep count by marking an "X" in a box (starting with box #1) above the kind of food you saw advertised on T.V. each time it is advertised.

9						
8						
7						
6						
5						
4						
3						
2						
1						
	SNACKS and FAST FOODS "POTATO CHIPPIES"	CANDY and GUM	DRINKS  POP TING	CEREALS 	FRUITS and VEGETABLES 	MILK FOOD

GENERALIZATION

Nutritious snacks contribute to a person's daily nutritional needs.

TEACHER'S NOTES

It is important to note that fruit juices and milk do contain "natural" sugars (fructose, lactose, etc.), but have less total sugar than soft drinks, fruit punches, and fruit drinks (which are usually only flavored sugar water). Many soft drinks, fruit drinks and punches are also devoid of important nutrients found in unsweetened fruit and vegetable juices. (Although some may be highly fortified with one vitamin to induce consumers to purchase them.)

Lesson #3-3

TITLE: "Better 4-U Beverages"

OBJECTIVES:

The student will:

- be able to distinguish between a group of beverages on the basis of sugar content.
- sample a variety of low-sugar fruit and vegetable juices

MATERIALS:

- You will need to purchase an assortment of juices chosen from the following:

  *Frozen orange juice concentrate (16 oz. can)
  *Frozen pink grapefruit juice concentrate (16 oz. can)

  Grape juice (unsweetened) - 32 oz. or 48 oz. cans/glass jars
  Apple juice (unsweetened) - " " "
  *Tomato juice - " " "
  *V-8 vegetable juice cocktail - " " "
  Apricot, pear, or peach nectar - " " "
  *Guava or papaya nectar - " " "

  * (Excellent source of vitamin C)

- 3" x 5" blank index cards/magic marker
- 4 oz. Dixie paper cups
- Punch-type can opener
- Long spoon or spatula for stirring
- 2 plastic pitchers (if frozen juice is used)
- Worksheet(s) - "SUPER SIPPERS and GOOFY GULPERS" (#3-3A and #3-3B)

ACTIVITY: (See next page)

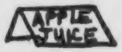
ACTIVITY:

1. Begin by asking your students what they like to drink when they get thirsty.

2. State that some drinks are better than others for our health. Say, "Some beverages have a lot of sugar added to them and sugar can cause cavities in your teeth." Ask the class if they can name any high sugar drinks? (Examples include: soda pop (except diet kinds), Kool-Aid soft drink mixes, Hi-C, Tang Instant Breakfast drink, Lemonade and other flavored instant drink mixes).

3. State that there are many beverages that are low in sugar (have no sugar added) and which are natural sources of vitamins and minerals. Ask students if they can name the drink that is the lowest of all in sugar? (Water). Mention that milk (not chocolate-flavored) is a low-sugar drink that also contains calcium, a mineral which helps bones and teeth grow strong.

4. Tell students that now they are going to set-up and sample from a "Beverage Buffet". Explain that they will be sampling some of nature's own "thirst quenchers" - - fruit and vegetable juices, and nectars. To set-up buffet (will need a table or other work area):
   a) Reconstitute thawed cans of orange and pink grapefruit juice in the 2 plastic pitchers. Punch openings in tops of metal cans.
   b) Place chilled cans/jars and 2 pitchers on the table (or work area) and space apart.
   c) Identify each different beverage with an index card folded in half. Each different beverage being sampled should have a separate I.D. card placed in front of it on the table.
   d) Designate a few students to help you pour beverages to class members. Distribute dixie cups to each student. Cups should be half-filled with the fruit or vegetable juice being sampled.
   e) Instruct students to sample each fruit/vegetable juice one at a time (all class members will sample simultaneously).



5. Ask the class the following questions as you go along:
   a) Do you like this drink?
   b) How does it taste? (sweet, sour, etc.)

6. Emphasize that certain beverages contain a lot of vitamin C (refer to "materials" section for asterisked items). Stress that all beverages they sampled are unsweetened - no sugar added.

7. Hand out worksheets "Super Sippers and Goofy Gulpers". Read the instructions aloud to the class. (Students should be able to complete this in 10-15 minutes). *Go over worksheet in class. (The "Super Sippers" list can be sent home for parent information.)

*Key:

SUPER SIPPERS	GOOFY GULPERS
Milk (white)	Coke
Orange Juice	Tang
Grape Juice	Lemonade Mix
Pear Nectar	Kool-Aid
Water	Hi-C
Apple Juice	7-Up
Grapefruit Juice	Orange Drink
Apricot Nectar	Fruit Punch

Worksheets #3-3A and
#3-3B

SUPER SIPPERS AND GOOFY GULPERS

WORKSHEET INSTRUCTIONS:

1. Pick out the drinks from the list below that have no sugar added and are high in nutrients. Write these drinks on the sheet that says "SUPER SIPPERS".

2. Pick out the drinks from the list below that have sugar added to them and write these down on the sheet that says "GOOFY GULPERS".

MILK (White)

ORANGE JUICE

COKE

TANG

GRAPE JUICE

PEAR NECTAR

LEMONADE MIX

WATER

KOOL-AID

APPLE JUICE

HI-C

GRAPEFRUIT JUICE

7-UP

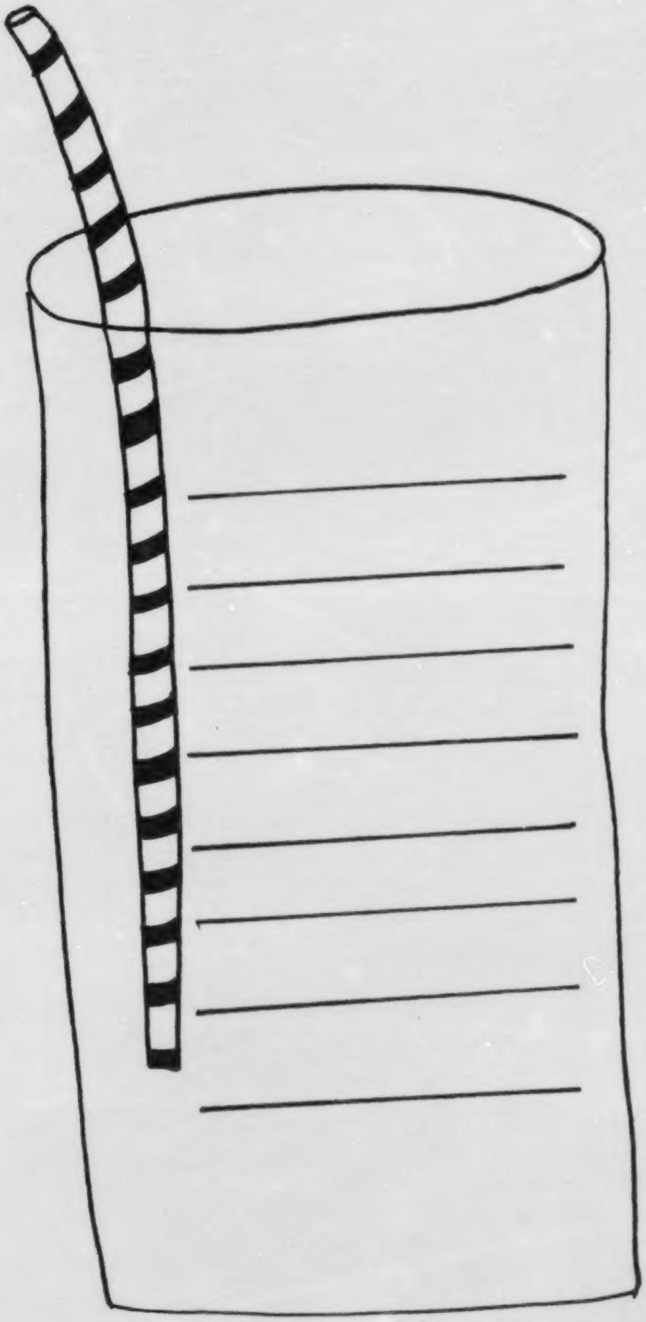
FRUIT PUNCH

ORANGE JUICE

APRICOT NECTAR

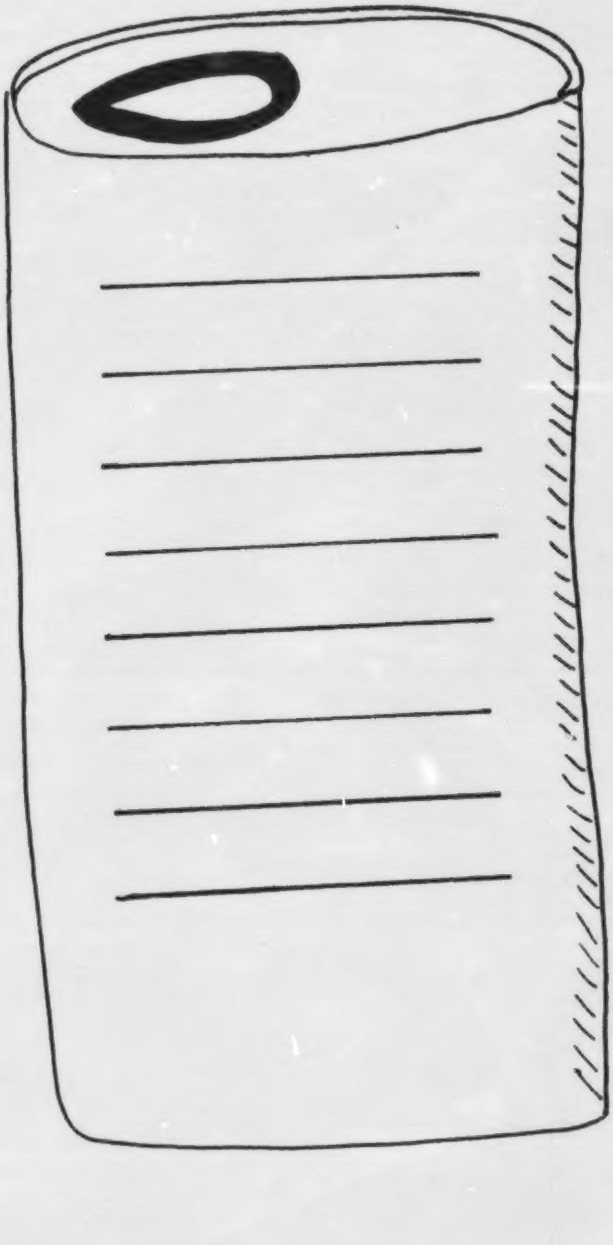
Worksheet #3-3A

SUPER SIPPERS



Worksheet #3-3B

GOOFY GULPERS



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GENERALIZATION

Certain types of food promote tooth decay. There are many food choices a person can make that do not promote tooth decay.

TEACHER'S NOTES

Lesson #3-4

TITLE: "Build a Better Biter"

OBJECTIVES:

The student will:

- list 6 snack choices that will not promote tooth decay.
- cite 3 ways to properly care for teeth.

MATERIALS:

Day 1
- Handout - "SNACK SHEET" **(Handout #3-4)**
- 2 Worksheets - "TOOTH TREATS" & "CAVITY-CAUSING CULPRITS" **(#3-4A & #3-4B)**
- Scissors/glue
- Worksheet - "BUILD A BETTER BITER" **(#3-4C)** (2 pages)

Day 2
- Scissors
- Crayons
- Cellophane tape

ACTIVITY: (2 days)

Day 1

1. Begin by asking students what kinds or types of food promote dental cavities. (Focus students on sugary foods and snacks.)
2. State that sticky, slow-dissolving sweets are the most harmful to teeth - especially when eaten between meals. Sugar combines with the fuzzy coating on teeth (plaque) to form acids. These acids can cause cavities in your teeth.
3. Tell students that 3 of the best ways to prevent cavities are:

a) try not to eat sticky, sugary foods, especially between meals.
b) brush your teeth after eating (or, if you can't brush, at least rinse your mouth with warm water).
c) visit your dentist twice a year for check-ups.

4. Ask students what they think are good snack foods for their teeth? (Emphasize that fresh fruits and vegetables, unsweetened fruit juices, milk, cheese, whole grain crackers, popcorn, nuts and unsweetened peanut butter are nutritious, low sugar snacks.)

5. Distribute handout entitled "SNACK SHEET" and the 2 accompanying worksheets, "TOOTH TREATS" and "CAVITY-CAUSING CULPRITS."

6. Explain to the class that each student is to cut-out each snack picture (square) on the "SNACK SHEET" and paste it on the appropriate sheet (either on "TOOTH TREATS" if the snack food is low in sugar, or on "CAVITY-CAUSING CULPRITS" if the snack food is high in sugar and is sticky/gooey).

7. Have students hand the 2 worksheets in to you for corrections (a key is provided below). Go over the worksheets in class after they are returned to students and mention any common errors, etc.

Key:

"TOOTH TREATS"

Apple
Grapes
Pineapple
Milk
Blueberries
Apricot
Nectar
Cheese
Watermelon
Orange

"CAVITY-CAUSING CULPRITS"

Popsicle
Chocolate Sandwich Cookie
Bubble gum
Marshmallows
Ice Cream Cone
Soda
Jelly Beans
Caramels
Winkie
Toffee

7. (Continued)

"TOOTH TREATS"

Peanuts
Pear
Tomato
Banana
Popcorn
Yogurt
Plums
Green Pepper
Celery
Strawberries
Avocado
Carrot
Whole Grain Crackers
Mushrooms
Fruit Juice
Cucumber Coins
Peanut Butter

"CAVITY-CAUSING CULPRITS"

Hard Candy
Cupcake
Lollipop
Candy Bar
Jello
Pie
Mints
Donut
Jelly
Frosted Cake
Gum
N & N's Candy

Day 2: ACTIVITY:

1. Distribute sheets #1 and #2 entitled "BUILD A BETTER BITER."

2. Explain to students that they will be creating a bulletin board display with a "mouthful" of good snack ideas contributed from each student.

Instructions on how to "BUILD A BETTER BITER":

a) Have students color the lips of sheet #1.
b) Next, demonstrate how to cut the slits for each tooth tab in the "mouth" (sharp-pointed scissors will make this easier). Point out that the slits are drawn as solid dark lines above the top of each tooth.
c) Have students cut-out individual teeth with tabs on sheet #2. *Instruct students to write a good tooth snack on each of the numbered teeth (enclosed by dotted lines on sheet #1).

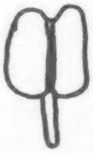
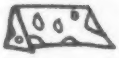
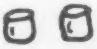
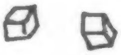
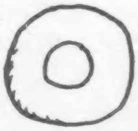
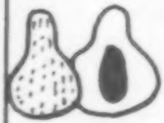
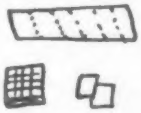
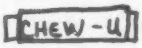
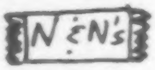
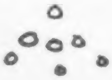
2c. (Continued)

(Note: students can use their "TOOTH TREATS" worksheets saved from the prior activity for a guide.)

d) Finally, students should fit the "teeth" into their "mouth" design (one by one) by fitting the tabs for each tooth into the slits in the correct tooth position (teeth are numbered and tooth shapes are outlined in dotted lines on sheet #1 for easy match-up). Once tabs are inserted into the slits, have students fold tabs down over the back of the "mouth" (sheet #1) to keep the teeth secure. Tabs can then be taped down with cellophane tape.

3. Make a bulletin board display of the "BETTER BITERS" and allow students to examine each others' "mouths" to see the kinds of good low-sugar snacks each has written under the teeth.

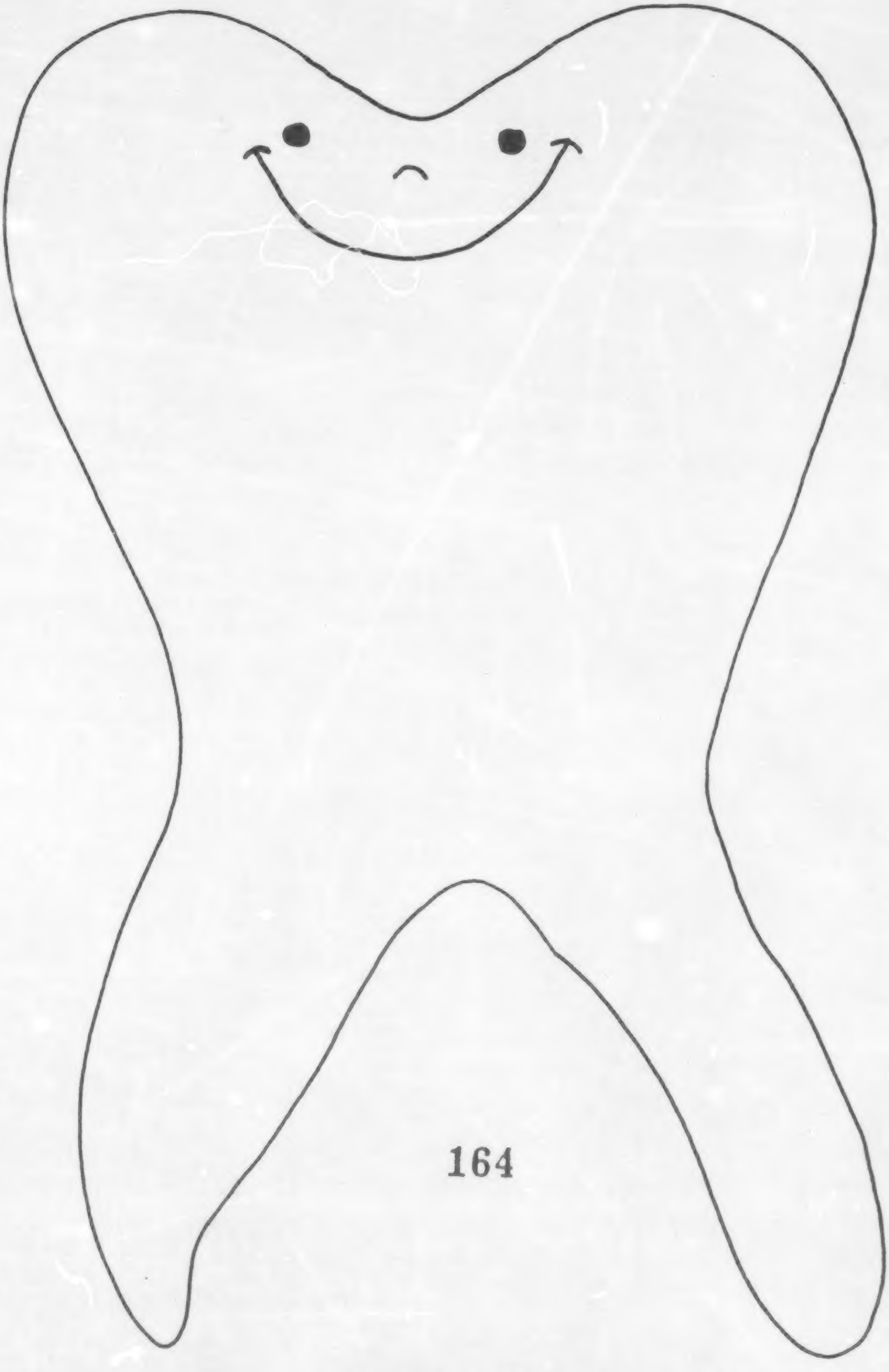
SNACK SHEET

 Apple	 Grapes	 Popsicle	 Chocolate Sandwich Cookie	 Pineapple	 Milk	 Blueberries
 Bubble Gum	 Apricot	 Nectar	 Cheese	 Watermelon	 Marshmallows	 Ice Cream Cone
 Soda	 Orange	 Caramels	 Winkie	 Peanuts	 Hard Candy	 Pear
 Cupcake	 Tomato	 Lollipop	 Banana	 Popcorn	 Candy Bar	 Jello
 Yogurt	 Plums	 Pie	 Mints	 Green Pepper	 Celery	 Donut
 Avocado	 Jelly	 Carrot	 Whole Grain Crackers	 Frosted Cake	 Gum	 Mushrooms
 Candy	 Fruit Juice	 Cucumber Coins	 Jelly Beans	 Strawberries	 Peanut Butter	 Toffee

Worksheet #3-4A

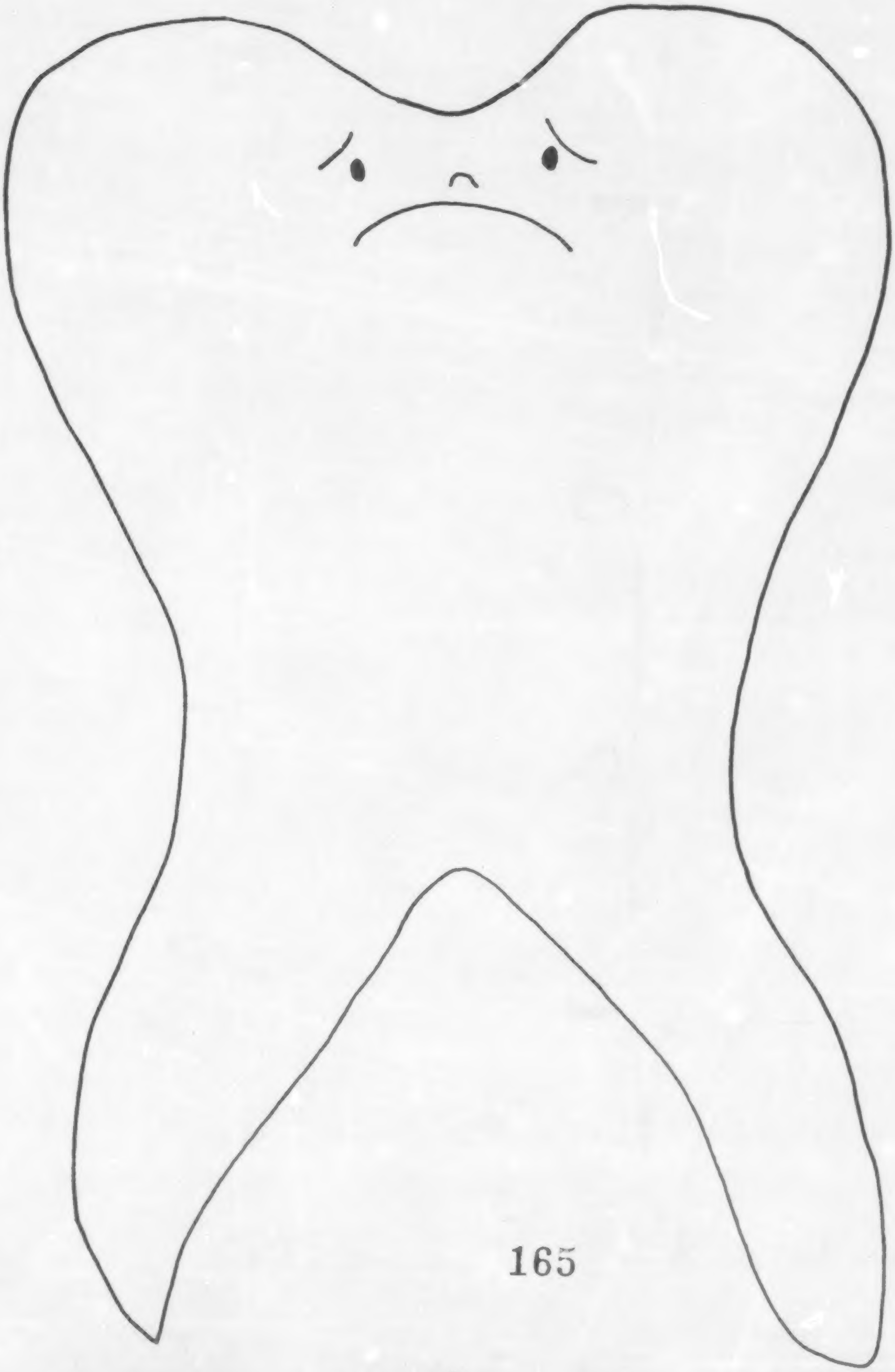
TOOTH TREATS

PASTE THE GOOD SNACKS THAT WON'T GIVE YOU CAVITIES ON THIS PAGE.



CAVITY-CAUSING CULPRITS

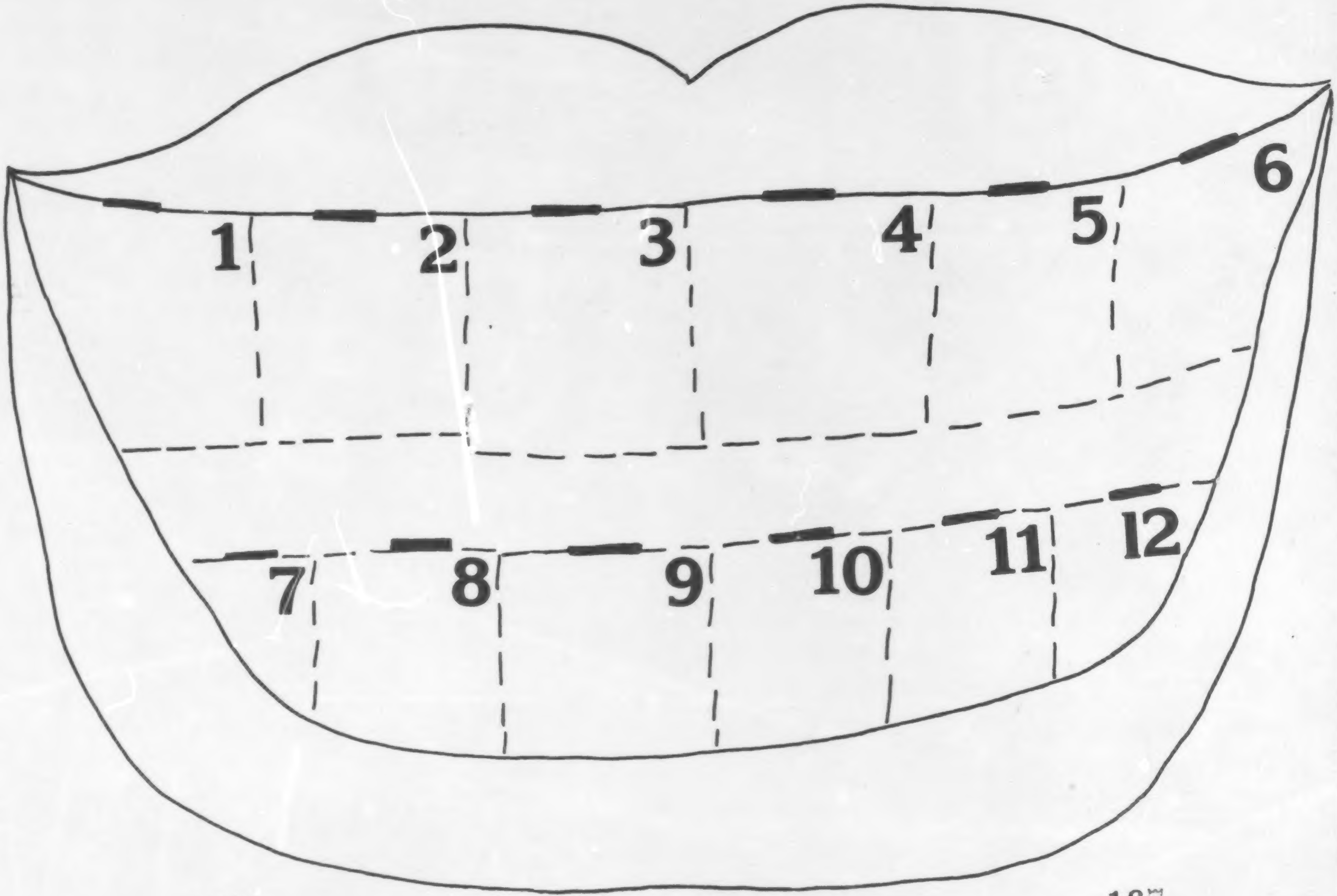
PASTE THE CAVITY-CAUSING SNACKS ON THIS PAGE:



Worksheet #3-4C

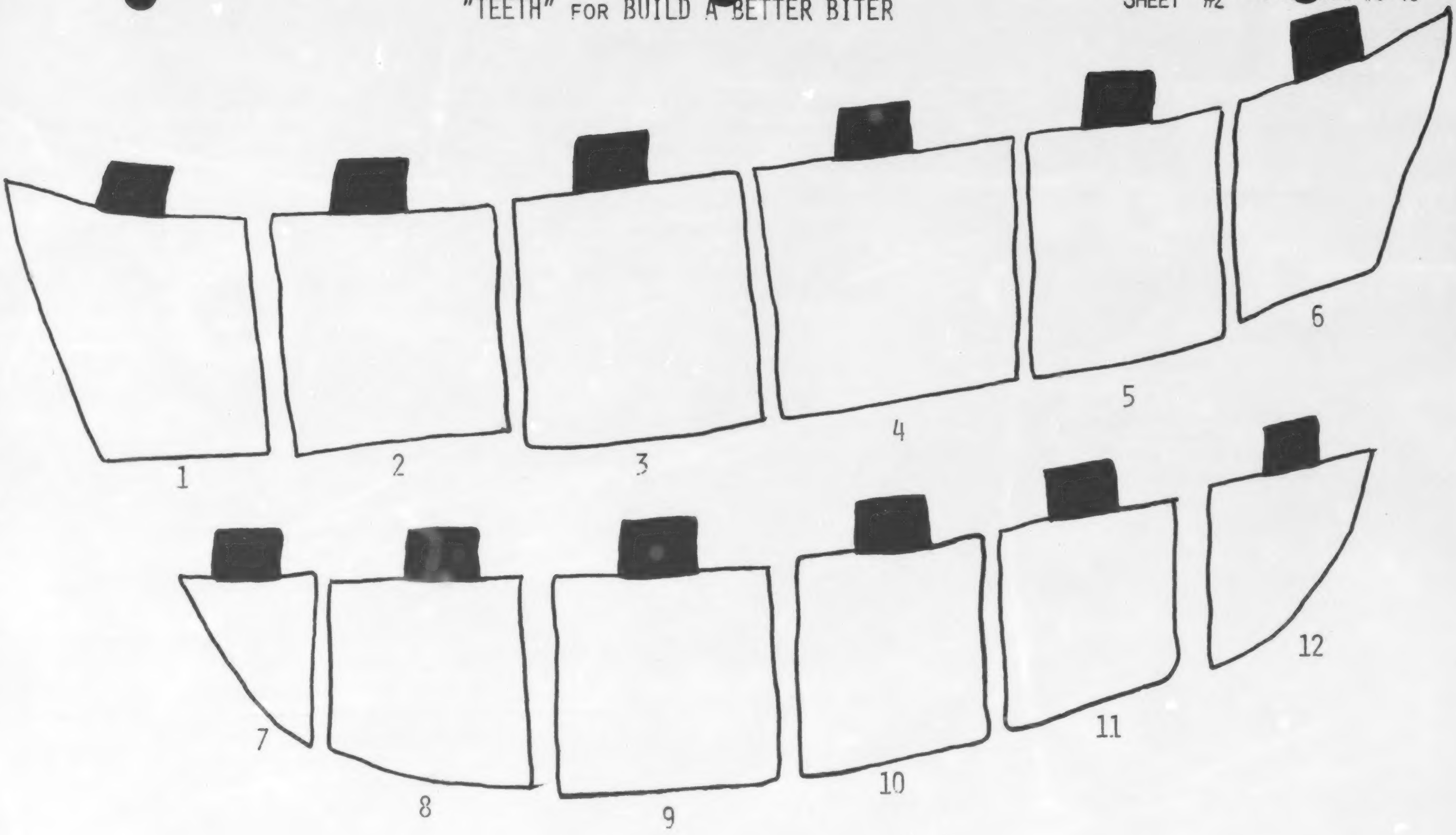
BUILD A BETTER BITER

SHEET #1


1
2
3
4
5
6
7
8
9
10
11
12

SHEET #2 Worksheet #3-4C

"TEETH" FOR BUILD A BETTER BITER



INSTRUCTIONS:

1. USE SCISSORS TO CUT OUT TEETH. THE BLACK BOXES ON THE TEETH ARE TABS - CUT AROUND THESE!

2. NEXT, FIT THE TABS FOR EACH TOOTH IN THE MATCHING SLITS IN THE "MOUTH" (SHEET #1) AND FOLD THE BLACK TABS OVER ON THE BACK SIDE OF THE "MOUTH".

GENERALIZATION

Friends (peers) often influence the food choices we make.

TEACHER'S NOTES

TITLE: "Introducing Foods to our Friends" Lesson #3-5

OBJECTIVES:

The student will:

- Name a food that a friend has introduced to him/her.
- Introduce a food to friends (peers) in the class.

MATERIALS:

- Assorted foods (brought by students)

ACTIVITY: (2 Days)

Day 1

1. Explain that we all learn things from our friends. Ask:
   - What are some of the things you've learned from your friends?

2. Say: Most of us have learned about certain foods from our friends. We've learned to like (and maybe dislike) certain foods because our friends like/dislike them. Some of us might have learned about a brand new food when a friend shared it with us. Ask:
   - Have any of you learned to try a new food because a friend shared it with you? (e.g. at lunch, or maybe when you went to his/her house for dinner?)

3. Have students relate their experiences trying foods with friends. Ask:
   - Which food did you try?
   - Did you like it? Why or why not?
   - Do you think you were more willing to try the food because your friend had tried it first? Why/why not?

4. Ask students to bring a nutritious food they like to class for "show and tell". (Note: the "show and tell" sessions will take place in small groups of 5-6 students. So, ask each student to bring enough food to share with the other children in his/her group. Not much

4. (Cont'd.)...

food is needed (e.g. if a student brings a stalk of celery it can be cut into 5-6 pieces so that each child will have at least a "taste".)

To avoid having children bring high-sugar foods (candy, etc.), you might limit them to one or more of these classes of foods:

- Fruits
- Vegetables
- Meat/Poultry/Fish/Beans
- Bread
- Milk/Cheese

Day 2:

1. Divide the class into small groups for "Show and Tell". Remind students that each of them will "introduce" his/her food to the other children in the group. Ask each child to explain:
   - Why she/he likes the food (taste? color? shape? texture? cultural reasons?, etc.)
   - How did she/he learn about it? (Did a friend or family member introduce it to him/her?)
   - When she/he likes to eat the food (breakfast? lunch? dinner? snack? on a special day (holiday) or a special season?)

2. After students have each had a chance to talk about their food, have them share their foods with the other children in the group.

3. Poll the class:
   - Did any of you taste new foods today? If so, did you like them?
   - Which foods did you like the most? Why? (ask individual groups).
   - Do you like sharing foods with your friends? Why/why not?

Used with permission from, Nutrition in the Social Studies, developed by Tanya Wapensky, for the Wisconsin NET Program, 1980.

GENERALIZATION

The body requires energy from food for growth, maintenance, work and play.

TEACHER'S NOTES

Lesson #3-6

TITLE: "More or Less Energy?"

OBJECTIVES:

The student will:

- Define "energy".
- State 4 ways in which the body uses energy.
- Explain that energy used by the body is derived from food.
- Identify 2 activities which require less food energy in comparison to 2 activities identified as requiring more food energy.
- Suggest one high energy, high nutrient snack food.
- Suggest one low energy, high nutrient snack food.

MATERIALS:

- Tennis ball
- ~10 magazine pictures of children (or adults) engaging in a variety of physical activities - - i.e. sleeping, eating, reading, sports, camping, etc.
- Worksheet - "More or Less Energy?" (#3-6)
- Red and blue crayons, colored pencils or markers

ACTIVITY:

1. Begin by asking students to volunteer their definitions of the term "energy". Discuss "energy" as the ability to produce some form of action.
2. Bounce the tennis ball on the floor in front of your class. Ask students what gives the ball power (energy) to move?

2. (cont'd.) . . .

(Ans. Gravity; the force of your hand pushing down on it). Turn the classroom lights on and off once or twice. Ask the class what kind of energy this represents? (Electricity).

3. Ask students where they get energy to move their bodies? (Food).

4. Ask the class to name some ways their bodies use food energy. Suggest that students think about all their daily activities - including sleeping and eating. Summarize by stating that food energy is used by the body for growth, maintenance of body functions, work and play.

5. Show the magazine pictures of people (children and/or adults) participating in a variety of physical activities. Hold up the pictures individually and ask students to state if the activity shown requires a person to use a little or a lot of energy to perform. Out of all the pictures displayed, which activity requires the most energy to do? Which the least?

6. In reference to the pictures shown in the previous step, ask your class which individuals should eat high energy, high nutrient foods? (Discuss cheese, peanut butter, nuts & seeds as being high energy, high nutrient foods). Which individuals should eat low energy, high nutrient foods? (Discuss fresh fruits, raw vegetables, skim milk as being low energy, high nutrient foods.) Discuss the principle that "high energy" activities (that is, those activities that require a lot of energy to perform, such as most sports) use more food energy than those activities that involve less body movement (such as sleeping, eating, watching T.V., etc.).

7. Distribute copies of the worksheet entitled, "More or Less Energy?" Read the directions aloud. Check to make sure each student has a red and a blue crayon or colored pencil. Allow 10-15 minutes for completion of the worksheet. Discuss the answers.

Key: Activities that require more energy:

Roller skating, hockey, jogging, bowling, jumping rope, swimming, basketball, football, tennis, soccer, ice skating, bicycling.

Activities that require less energy:

Eating, sleeping, reading, watching T.V., studying.

Worksheet #3-6

MORE OR LESS ENERGY?

DIRECTIONS:

1. Circle the activities below that require more food energy in RED.
2. Circle the activities below that require less food energy in BLUE.

EATING

ROLLER SKATING

READING

BOWLING

HOCKEY

JUMPING ROPE

SLEEPING

BASKETBALL

WATCHING T.V.

STUDYING

SWIMMING

FOOTBALL

ICE SKATING

BICYCLING

SOCCER

TENNIS

JOGGING

GENERALIZATION

The process of transferring energy from the sun through a community of plants and animals in a step-by-step series of eating and being eaten is called the food chain.

TEACHER'S NOTES

*Optional resource:

"The Food Web Game"

from: Peanut Butter & Pickles, California NET, 1979. (Available on loan from CESAs 3, 4, 5, 6, 11, 12, 14, or DPI)

This game teaches students the interrelationships among natural resources, predators, and food sources needed by man.

TITLE: "Linking the Food Chain"

Lesson #3-7

OBJECTIVES:

The student will:

- List the major steps of the food chain.
- Become more aware of how plants and animals are interdependent.
- Draw an example of a simple food chain from nature.
- Grow alfalfa sprouts as a class project.

MATERIALS:

- Pictures of carnivorous and herbivorous animals.
- Construction paper or other drawing paper.
- Crayons

*For growing alfalfa sprouts:

  - One 32 oz. (1 quart) jar - clean!
  - 2 T. alfalfa seeds
  - 6" square of cheesecloth or nylon mesh (nylon stockings work fine)
  - 3" heavy rubber band
- Recipe - Hairy Harrys" (#3-7)

ACTIVITY:

1. Begin by stating that directly or indirectly, all life depends on the sun. Energy from the sun (in the form of light) is passed through plants and animals in a process called the Food Chain.

1. (Cont'd.)...

Tell students that they are now going to learn about the steps in the food chain. (Outline these steps on the chalkboard as you go along.)

2. State that plants are the only living things that can make their own food. They do this by trapping light from the sun in their leaves. (This is called photosynthesis.) This energy, along with soil and water are the important ingredients needed by plants to make their food.

3. Tell the class that the next step in the food chain is the animals that eat plants. Animals depend upon plants for energy and food. Some animals are called herbivorous (plant eaters) and survive by eating only plants. Can students think of any animals that eat only plants? (Show pictures of an elephant, deer, cow, horse, squirrel, giraffe, etc.)

4. Stress that people also obtain the energy from the sun by eating plants. Ask the class, "What are some of the plant foods we eat?" (Fruits, vegetables, grains, dried beans, peanuts and peanut butter, nuts, seeds)

5. State that the next step in the food chain is animals which eat other animals to get their energy. These animals are called carnivores (meat eaters) and survive by eating other carnivores and herbivores. Can students name any animals that eat other animals? (Show pictures of lions and tigers - these eat rabbits, antelope, etc.; snakes - these eat mice and frogs; hawks and owls - these eat field mice and other small rodents.)

6. Mention that people get food energy from eating both plants and animals. Ask the class, "What are some animals or animal products we eat?" (Meat, fish, poultry, eggs, milk, cheese and other dairy products, etc.)

7. Reiterate that no animal can make its own food like plants can. Emphasize that animals (including people) must eat food for energy to survive and stay healthy.

8. Pass out construction paper or other suitable drawing paper. Instruct students to draw an example of a food chain from nature. State that the food chain must have at least 4 steps! Example: Leaves → worm → fish → man.

9. On the same sheet of paper (or on the reverse side), have each student draw a carnivorous animal and an herbivorous animal. (Review the definitions of "carnivorous" and "herbivorous" again).

10. After students have completed steps #8 and #9, go around the room and have each child share his/her drawings. Comment on the steps of the food chains presented.

11. As a class, grow alfalfa sprouts (sprouting takes about 5 days).

    Directions follow:

    A. Place 2 T. of alfalfa seeds in the quart jar. Fill the jar with lukewarm water and let it stand overnight.

    B. Cover the top of the jar with the 6" square of cheesecloth or nylon mesh and secure tightly with the rubber band. Drain off the water that has been soaking the seeds overnight. (This water can be used to water other plants in the classroom.)

    C. Place the jar on its side, so that seeds form a thin layer around the jar. Place it in a dark place where it is warm and humid.

    D. At least twice a day rinse the sprouts by pouring lukewarm water into the jar, swirling around, and pouring out the excess (students can take turns doing this). *Seeds should be kept moist but not wet.

    E. Sprouts will develop in 5-6 days. When the first

11. E. (Cont'd.)...

young leaves appear the jar should be placed in direct sunlight for a few hours for development of green chlorophyll. Explain to students that this green pigment called chlorophyll is what "traps" the sunlight and allows the plant to make its own food.

F. When sprouts have reached about 1 inch in length, store in covered containers in the refrigerator. Use these to make the recipe "Hairy Harrys".

12. After sprouts have grown and are "harvested", have the class prepare the recipe "Hairy Harrys". Have the class identify the source of each ingredient (plant or animal). Discuss again why the alfalfa sprouts turned green in the sun and why this phenomenon is important for all plants.

EQUIPMENT/SUPPLIES:

Juicer (manual)

(Optional) - Blender or peanut grinder

Knives

Cutting surface

4 bowls

NAME OF RECIPE: "Hairy Harrys"

INGREDIENTS:

6 large apples

2 lb. roasted peanuts (or 28 oz. peanut butter jar)

Alfalfa sprouts (grown by the class) - Place in a bowl

1 1/2 c - 2 c. raisins - - place in a bowl

Juice of 1 lemon

PROCEDURE:

1. Roll lemon, cut in half, and squeeze juice into a small bowl.

2. Slice apples (remove core first) and place in bowl with lemon juice to retard browning.

3. To make peanut butter (opt.):

   Shell peanuts and place in blender or grinder. You may need a small amount of cooking oil to start the process. Blend until smooth.

4. Make "Hairy Harrys":

   Each student should spread an apple slice (or 2) with peanut butter, then sprinkle with home-grown alfalfa sprouts. Top with raisins and EAT!

GENERALIZATION

Foods selected from the four food groups provide a nourishing lunch.

TEACHER'S NOTES

Resource pamphlet for this activity:

"Beat the Brown Bag Blues"

Dairy Council of Wisconsin, Inc.
Milwaukee, WI 53222
Copyright, 1981.

Title: "Brag About Your Brown Bag!"

Lesson #3-8

OBJECTIVES:

The student will:

- Explain why lunch is an important meal
- Identify and select a variety of foods from the four food groups for lunch (at home or at school).

MATERIALS:

- Food models (Dairy Council) or food pictures
- Worksheet - "My Brown Bag Lunch" (#3-8)
- Small, brown paper sacks (1 per student)
- Crayons, markers, or colored pencils
- Scissors
- Parent information sheet

  (Reprint of "How to Take the Drag Out of Bag Lunches" from Creative Food Experiences for Children, 1981.)

ACTIVITY:

1. Begin by asking students, "How does your body tell you it's hungry? When do you feel hungry (what times during the day)?"

2. Ask students to name the 3 main meals of the day. Discuss why they can't eat just once a day and have it last all day long. Mention to students that their bodies need to be "re-fueled" with food at lunch time to give them energy to do their afternoon activities.

3. Remind the class that time is specially set aside for lunch during the school day. State that lunch can be purchased in the school cafeteria or brought from home in a paper sack or lunch box. Take a tally as to how many usually eat a hot

3. (Cont'd.)...

school lunch vs. how many bring their lunch from home.

4. Ask students to name some of the different nutritious foods a person can eat for lunch. Review the four food groups - - Bread-Cereal Group, Fruit-Vegetable Group, Milk-Cheese Group, and Meat-Protein Group.

5. Display food models (or food pictures) on a table or other low-lying area. These models should be arranged in 4 piles representing the four food groups.

6. Allow students to plan good lunches using the food models, individually or in small groups. Emphasize that a good, nutritious lunch includes foods from every food group. Provide students with the following examples of nutritious lunches: A) Peanut butter and banana sandwich on whole wheat bread, carrot sticks, carton of milk - mention that the peanut butter is in the Meat & Protein Group, the 2 slices of bread are in the Bread-Cereal Group, the carrot sticks and banana are in the Fruit-Vegetable Group, and the milk, of course, is in the Milk-Cheese Group. B) Tuna salad in whole wheat pita (or "pocket") bread (*You may want to bring a sample "pocket" bread to class to show children), green pepper rings and cherry tomatoes, a fresh peach, and a carton of milk (Again, classify these foods for students in terms of the four food groups). After students have worked with the food models, discuss some of the lunches they planned.

7. Distribute copies of the worksheet, "My Brown Bag Lunch". Instruct each student to plan a sack (or box) lunch by drawing 4 foods s/he would like to eat for lunch on the worksheet (draw one food in each square). Emphasize that they should try to include one food from each of the 4 food groups.

8. After students have finished drawing their "lunches", instruct them to cut-out each square (drawing) on their worksheets with scissors.

9. Hand out a paper lunch sack to each child. Have students place their lunch drawings inside the sack and then instruct them to write their name on the outside of the sack.

10. Have each child come to the front of the classroom with his/her brown bag "lunch" and reveal the contents of the lunch to the rest of the class. Each student should attempt to classify his/her food "choices" into the four food groups and then explain why s/he chose those particular foods for lunch. After each student has "Bragged about his/her Brown Bag", the class may want to vote on the top 5 nutritious and delicious sack lunches.

11. (Opt.) Set a date when each student is to bring a sack (or box) lunch from home to school. (*A note to parents informing them of this should be sent home with each child several days ahead of time. Remind children the day before, too). As a class, decide where to eat the lunches - outdoors on a nice day would be fun. Have students sit in a circle while eating their lunches and allow them to volunteer what foods they brought from home. How many brought foods from each food group? How many packed their own lunches?

12. Distribute copies of the parent information sheet, "How to Take the Drag out of Bag Lunches," to be sent home with every student.

*Your school food service personnel may object to this activity. Please consult them for cooperation!

MY BROWN BAG LUNCH

DRAW A FOOD YOU WOULD LIKE TO EAT FOR LUNCH IN EACH SQUARE BELOW!

GRADE 4

Grade 4

NUMBER	LESSON TITLES	GENERALIZATIONS	HEALTH CONTENT AREA
4-1	"I've Got Breakfast on My Brain!"	Breakfast is an important first source of nutrients for the day. A wide variety of foods can be eaten for breakfast.	Physical Health
4-2	"Score More with Breakfast!"	" " " " "	Physical Health
4-3	"The Selling of Super Snack"	Snacks whicn are high in nutrients in relation to calories (i.e. high nutrient density) contribute to a person's daily nutrition.	Physical Health
4-4	"How Dry You Aren't"	Water is a nutrient which has specific functions in the body that are important for health.	Physical Health
4-5	"Fabulous Fiber"	Fiber, although not a nutrient, is an essential component of a person's diet as it provides the bulk necessary for regular elimination.	Physical Health
4-6	"The Calorie Connection"	Food energy is measured in kilocalories; a kilocalorie is a measure of heat that food can produce. The amount of food energy a person takes into his/her body should match the amount of energy s/he expends.	Physical Health
4-7	"The Garbage Can Isn't Hungry!"	When food is thrown out, energy and nutrients are wasted. Students can take steps to help decrease food waste in their school lunch program.	Community and Environmental Health
4-8	"How Does it Feel to be Fat?"	Obesity can affect the way the obese person is treated by society, which, in turn, can affect the individual's self-concept.	Mental Health (Psychological/ Emotional Aspects of Nutrition)

GENERALIZATION

Breakfast is an important first source of nutrients for the day. A wide variety of foods can be eaten for breakfast.

TEACHER'S NOTES

TITLE: "I've got Breakfast on my Brain!"

OBJECTIVES:

The student will:

- list foods s/he likes to eat for breakfast
- classify breakfast foods into food groupings (described in the activity)

MATERIALS:

- worksheet - "I've got Breakfast on my Brain!" (#4-1)
- (opt.) drawing paper
- (opt.) crayons, markers or watercolor paints

ACTIVITY:

1. Begin by asking your students why breakfast is important. Stress that breakfast is an important first source of important first source of nutrients (especially protein, carbohydrates, vitamins and minerals) for the day. Remind the class that children who eat breakfast every morning learn, work and play better than those who skip breakfast.

2. Ask students what they think makes a good, healthful morning meal? A good breakfast should include:

a) a whole grain choice such as breads and or cereals (unsweetened): These foods provide energy, vitamins & fiber.

b) a fruit or vegetable choice: Breakfast is a good time of day to eat a good source of vitamin C (such as orange juice, strawberries, tomato juice, fresh melon, tangerines, grapefruit, green pepper).

c) a Protein food: These foods provide "lasting" energy throughout the morning which will help keep a person going strong until lunchtime. Examples of these foods include: milk; cheese; yogurt; eggs; leftover meat, fish or chicken; peanut butter; refried beans.

3. Mention that certain foods which can be eaten for breakfast are combinations of foods from the aforementioned food groupings. Examples of breakfast combination foods are: hamburgers, grilled cheese and tomato sandwiches, peanut butter and banana sandwiches, pizza, tacos, etc. (Ask the class if anyone is surprised at these suggestions.)

4. State that it isn't absolutely necessary for a person to eat foods from each of the previously discussed food groupings for breakfast - in fact, just eating something nutritious in the morning is a good start!

5. Pass out the worksheet headed "I've got Breakfast on my Brain." Give students 1/2 hour to complete this exercise in class.

6. Allow 15 minutes or so for students to share their answers to the worksheet questions.

7. After this, students should hand the worksheets to you. Check to see if students have correctly classified the foods listed as answers to questions 1-10 into the 3 breakfast food groupings.

8. Return worksheets to students and go over any common errors, etc.

9. (Opt.) Students can draw a picture of his/her favorite breakfast foods. These can be made into a bulletin board display, or perhaps displayed in the school cafeteria (obtain permission from your principal and school lunch manager if you decide to do this).

I've got Breakfast on my Brain!

INSTRUCTIONS: Complete the following sentences:

1. What is your favorite food for a "special" breakfast (for example, your birthday or a holiday)? ____________________

2. What food(s) do you like for breakfast when you don't feel well?
____

3. What is a breakfast food you especially like on a cold winter morning?
____

4. What is your favorite hot breakfast food? ____________________

5. What is your favorite cold breakfast food? ____________________

6. What do you like to drink for breakfast (can be more than one answer)?
____

7. What are some of your favorite breakfast fruits? ____________________
____

8. If you were going on a picnic breakfast, what would you take to eat?
____

9. If you went camping outdoors overnight, what would you like to make for breakfast in the morning? ____________________

10. If you were to fix a breakfast for your best friend, what would you make?
____

BELOW ARE THE NAMES OF 3 BREAKFAST FOOD GROUPINGS. WRITE THE NAME OF EACH FOOD YOU LISTED FOR EACH QUESTION (1-10) ABOVE IN THE PROPER COLUMN(S).

FRUITS or VEGETABLES	WHOLE GRAIN BREADS & CEREALS	PROTEIN FOODS

GENERALIZATION

Breakfast is an important first source of nutrients for the day. A wide variety of foods can be eaten for breakfast.

TEACHER'S NOTES

Lesson #4-2

TITLE: "Score More with Breakfast!"

OBJECTIVES:

The student will:

- record his/her breakfast pattern for 1 week.
- compare his/her breakfast pattern to a daily breakfast guide.

MATERIALS:

- worksheet entitled "Score More with Breakfast!" (#4-2)
- score sheet to accompany "Score More with Breakfast!" (#4-2)

ACTIVITY:

1. Open the activity by explaining to students that they will be keeping track of their breakfasts for the next week and "scoring" them against a daily breakfast guide.
2. Distribute worksheet "Score More with Breakfast!" and discuss the daily breakfast guide (upper left on worksheet). Ask students why it is recommended that:

a) We eat a fruit or vegetable for breakfast? (Ans. For the vitamins and minerals they contain - especially vitamin C).
b) We should consume either a whole grain bread or cereal for breakfast? (Ans.) These foods contain carbohydrates which are used by the body for energy.
c) We should eat a power-packed protein food for our morning meal? (Ans.) Protein foods have "staying power" and keep

2c. (Continued)

us from getting an attack of the "hungries" too early in the morning).

3. Explain the procedure for recording "My Breakfast Score" (Bottom 1/2 of worksheet):

   a) On a separate sheet of paper, students should write down everything they eat for breakfast each day for 1 week. (Students should also record skipped breakfasts and reasons for doing so.)

   b) For each day's breakfast:

      ➡ If student ate one or more fruit or vegetable choices, s/he should draw a ★ in the fruit or vegetable column under the specific day of the week.

      ➡ If student ate one or more whole grain bread or cereal choices, s/he should draw a ★ in this column under the specific day of the week.

      ➡ If student ate one or more power-packed protein choices, a similar procedure should be followed.

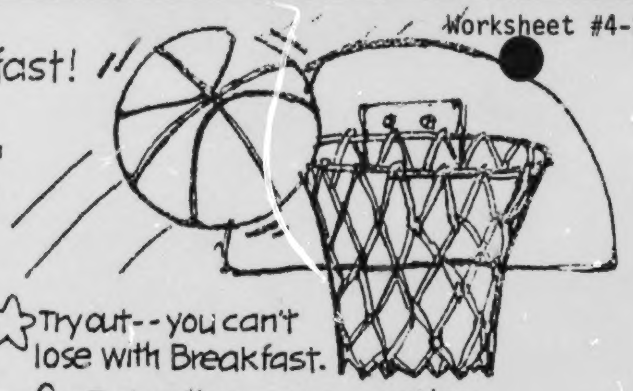
   c) A maximum of 3 stars (★) can be earned each day, for a maximum total of 21 stars for a week. *Students should total their star count at the end of the week and enter this number in the box provided on the worksheet.

   d) Pass out copies of "How Does My Score Rate?" Find out how many students fall into each category by asking for a show of hands.

Worksheet #4-2

nam ______________________________ ☆ W with Breakfast!

Score more with Breakfast



Daily Breakfast Guide

Fruit or Vegetable Choice

- Oranges
- Apples
- Bananas
- Melon
- Grapes
- Tangerine
- Pears
- Raisins
- Orange juice
- Tomato juice
- Nectars

Whole Grain Bread or Cereal Choice

- Whole wheat toast
- " " rolls
- Cornbread
- Grits
- Oatmeal
- Rice (brown)
- Farina
- Wheat flakes
- Pancake, waffles
- Granola - (homemade)

Power-Packed Protein Choice

- Low-fat Milk
- Cheese
- Yogurt
- Custard
- Hamburger
- Leftover Chicken, Beef or Fish
- Eggs
- Peanut Butter
- Beans

☆ Check your score on the Breakfast Scoreboard Daily.

☆ Try out-- you can't lose with Breakfast.

☆ Enjoy the game --eating Breakfast can be fun.

☆ Keep in practice -- eat Breakfast daily.

☆ Make your Breakfast team a well-rounded variety of foods.

☆ Keep an eye on the clock so you can time your plays to include Breakfast.

☆ My Breakfast Score ☆

*Adapted from ENERGIZE AT SUNRISE™. © 1977 Kellogg Company. Used with permission.	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	SATURDAY	SUNDAY
FRUIT OR VEGETABLE CHOICE:							
WHOLE GRAIN BREAD OR CEREAL CHOICE:							
POWER-PACKED PROTEIN CHOICE:							
TOTAL NUMBER OF STARS: ☐							

#4-2

HOW DOES MY SCORE RATE?

20-21 stars:	You are named one the "MVP's!" A top-scorer, to be sure! You and your breakfasts are a winning team!
15-19 stars:	You're still in the game but are missing out on those "fast-breaks!" Keep practicing by eating a variety of foods for breakfast everyday.
10-14 stars:	You're probably skipping more breakfasts and "slam dunking" down those you do eat! Give yourself plenty of time in the morning so you can include breakfast.
Less than 10 stars:	You're "fouling-out" of the game - - better recruit more teammates in your breakfast food team and you'll start to add up points fast!

GENERALIZATION

Snacks which are high in nutrients in relation to calories (i.e. high nutrient density) contribute to a person's daily nutrition.

TEACHER'S NOTES

Lesson #4-3

TITLE: "The Selling of Super Snack"

OBJECTIVES:

The student will:

- recognize a nutritious snack
- identify the nutrient content of selected foods that can be eaten for snacks.

MATERIALS:

- paper and pencils
- (opt.) oaktag or poster board, crayons
- handout - "SIMPLE SNACKS AND THEIR NUTRIENT KNACKS" (#4-3)
- one copy of "NUTRIENTS - SOURCES AND FUNCTIONS" (Univ. of WI-Extension) (See Appendix section of this package)

ACTIVITY:

1. Begin by asking students what makes a snack "nutritious"? State that nutritious snacks not only have calories (or energy value), they also contain nutrients - substances like protein, vitamins and minerals that everyone's body needs everyday!
2. Distribute handout entitled "SIMPLE SNACKS AND THEIR NUTRIENT KNACKS". Explain to students that this handout relates snacks and their nutritional value.
3. In order to help students see "what's in it for them," review the basic functions of Protein, Vitamins A & C, Calcium and Iron. *Refer to your copy of "NUTRIENTS-SOURCES AND FUNCTIONS."

(over)

4. Instruct students to choose one of their favorite nutritious snacks from the list given on the handout. Explain to students that they are to think about the snack's shape, size, color, texture, taste and most importantly, its nutritional value. (List these 6 considerations on the blackboard.)

5. Instruct each student to write an essay (1-2 pages) about the snack s/he has chosen in order to convince the reader that her/his snack is the best and most appealing snack to eat.
   *In writing the essay, students should include each of the 6 considerations listed on the blackboard.

6. (Opt.) Students can draw posters to accompany their stories to help advertise their snacks.
   Note: This assignment can be done during classtime or assigned as homework.

7. Once students have completed their essays (and optional posters), collect them. Set aside a time to read each story aloud (anonymously). (Posters can be shown to accompany stories at this time.)

8. After all stories have been read aloud, have the class vote on the top 5 "Super Snacks."

9. (Opt.) Stories could be compiled and typed up into a small booklet and distributed to each student. Posters can be displayed around the classroom, if you so desire.

Handout #4-3

SIMPLE SNACKS and their NUTRIENT KNACKS

★ NUTS AND SEEDS → PROTEIN

(PEANUTS, SUNFLOWER SEEDS,
PISTACHIO NUTS, ALMONDS,
CASHEWS, ETC.)

★ RAISINS AND OTHER DRIED FRUITS → IRON

(APRICOTS, PEARS, DATES, FIGS)

★ CHEESE, MILK, YOGURT → PROTEIN
CALCIUM

★ FRESH FRUIT → VITAMIN C
VITAMIN A

(ORANGES, APPLES, TANGERINES,
BANANAS, PEARS, PINEAPPLE,
PEACHES, PLUMS, GRAPES,
STRAWBERRIES, CANTELOUPE,
WATERMELON)

★ RAW VEGGIES → VITAMIN C
VITAMIN A

(CARROT STICKS, CELERY STICKS,
CHERRY TOMATOES, SLICED MUSHROOMS,
CUCUMBER COINS, ZUCCHINI STICKS,
TURNIP STICKS, BROCCOLI FLOWERETS
CAULIFLOWER, SNOW PEAS, ALFALFA
SPROUTS)

GENERALIZATION

Water is a nutrient which has specific functions in the body that are important for health.

TEACHER'S NOTES

TITLE: "How Dry You Aren't!"

Lesson #4-4

OBJECTIVES:

The student will:

- Recognize water as being an essential nutrient.
- List 3 functions of water in the body.
- State 3 ways the body loses water each day.
- Recognize that almost all foods contain some water.
- Compare and contrast the nutritional values of commonly consumed beverages.
- (Opt.) Prepare a high nutrient beverage.

MATERIALS:

- Handout/worksheet - "How Dry You Aren't!" (#4-4)
- (Opt.) Recipe - "Fruity Froth" (#4-4)

ACTIVITY:

1. Begin by asking students to guess how much of their body is water. State that the human body is more than half water. Blood, for example, is 90% water, and the brain is 75% water! Water exists in every cell in the body.

2. State that water is a very important nutrient. In fact, water is the most important food of all! Tell students that they can survive for weeks without a single bite of food, but that they can live only for a few days without water.

3. Distribute copies of the handout, "How Dry You Aren't!"

4. Go over the handout as follows. State that water has 3 very important functions in the body:

4. (Cont'd.)...

   a) Water carries nutrients (proteins, carbohydrates, fats, vitamins and minerals) to all your cells.
   b) Water carries waste products away.
   c) Water keeps your body at just the right temperature. (Ask the class what this temperature is. 98.6°F).

5. Tell the class that the body loses about 2½ quarts of water a day. Ask students to calculate how many cups of fluid that is. (Ans.: 10 cups) Remind them to record these figures on their worksheets. Mention that water is lost as urine, perspiration, even in breathing. Has anyone ever cleaned their glasses by breathing on the lenses?

6. Emphasize that water is usually easy to replace. State that every time we eat food, we also, "eat" water, and that water is a by-product of our cells' work (metabolism).

7. Ask the class to name some foods (not drinks) that contain a lot of water. (Most will probably guess tomatoes, oranges, and watermelon). Mention that almost all foods contain some amount of water. Bread is more than 1/3 water, and meat is over half water!! State that milk and juices are nearly all water - plus vitamins, minerals, carbohydrates, protein and fat squeezed in besides!

8. Instruct students to complete the worksheets in class. After students have finished filling in the requested information on the worksheets, ask them to share their answers to questions 1-5. Discuss answers to questions 6-9 after this. Correct answers to questions 6-9 are as follows: #6 - milk; #7 - milk; #8 - Orange Juice; #9 - soft drink.

9. (Optional) Prepare recipe, "Fruity Froth". Ask students to name the nutrients in the drink as they are tasting it. (Vitamin C and calcium). Recipe can be copied and sent home with students.

How Dry You Aren't!

What do you drink when you are thirsty? More importantly, why do you need to drink anything? Why do you get thirsty? You get thirsty because your body needs water! You are more than half water! Water is important for your body to function well and to stay healthy. Water helps your body in the following ways:

1. Water carries nutrients (proteins, carbohydrates, fats, vitamins and minerals) to all your cells.
2. Water carries away waste products.
3. Water keeps your body at just the right temperature (This temperature is ________________.
(Fill in the blank)

Your body loses about _______ quarts of water a day. This is _____ cups of fluid. You lose water through sweating, in waste products, and by breathing.

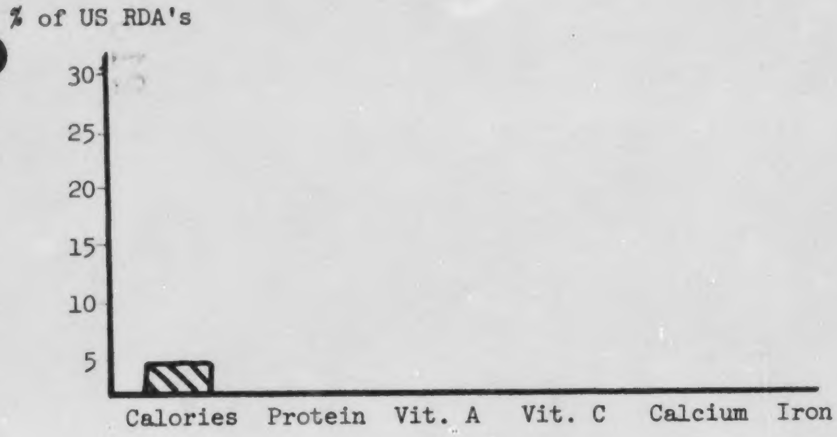
You feel thirsty when the water supply in your body gets low. Think about this. the more you run, the more you sweat, the faster you breathe, and the more water you lose. No wonder you get thirsty after playing hard!

Answer the following questions:

1. What do you like to drink when you are thirsty? ________________________.
2. What do you like to drink on a cold day? ______________ A hot day? _________.
3. How many times a day do you drink just plain water? ________________.
4. About how many glasses of water do you drink a day? ________________.
5. What do you most often drink with meals? Breakfast ________________.
Lunch ______________________, Supper ____________________.

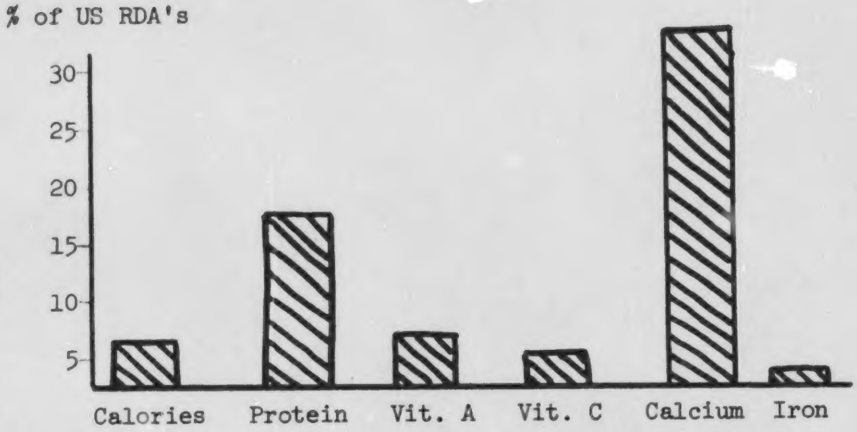
Since there are so many beverages around that can give you the water you need, it is easy to find something to drink when you are thirsty. If you choose wisely, however, you can choose something to drink that may also give you some protein, vitamins, and minerals as well!

Take a look at the following 3 bar graphs. Each graph shows the amount of calories and the amount (%) of nutrients (vitamins and minerals) found in the 3 beverages. (Bar graphs - next page)



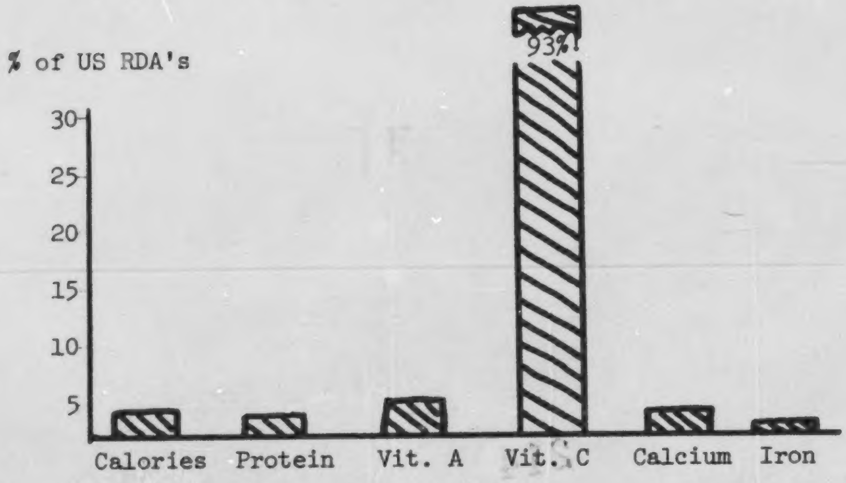
SOFT DRINK

1 cup Cola; 96 Calories



MILK

1 cup; 150 Calories



ORANGE JUICE

1/2 cup; 56 Calories

* USING THE ABOVE BAR GRAPHS, ANSWER THE FOLLOWING QUESTIONS:

6. Which drink is highest in protein? ____________________
7. Which drink is highest in calcium? ____________________
8. Which drink is highest in vitamin C? ____________________
9. Which drink is lowest in overall nutritional value? ____________________

Recipe #4-4

EQUIPMENT/SUPPLIES:

Can opener

Measuring cups

blender

4 oz. beverage cups (1 per student)

NAME OF RECIPE: "Fruity Froth"

INGREDIENTS:

6 cups cold water

1 - 12 oz. or 2 - 6 oz. cans orange juice concentrate, thawed

2 cups powdered dry milk

(Opt.) nutmeg

(Opt.) 3 bananas, ripe

PROCEDURE:

1. Measure all ingredients into blender.
2. Whip ingredients together.
3. Pour into serving cups.
4. (Opt.) Sprinkle with ground nutmeg, if desired.

GENERALIZATION

Fiber, although not a nutrient, is an essential component of a person's diet as it provides bulk necessary for regular elimination.

TEACHER'S NOTES

TITLE: "Fabulous Fiber"

Lesson #4-5

OBJECTIVES:

The student will:

- Define dietary fiber in simple terms
- Discuss the role of dietary fiber in the gastrointestinal tract.
- State that constipation is often related to a lack of dietary fiber.
- Recognize the relationship between the degree of refinement of a food product and its fiber content.
- List 4 excellent sources of dietary fiber.

MATERIALS:

- Handout - "Fiber Facts" (#4-5)
- Worksheet - "Which Food has More Fiber?" (#4-5)
- Recipes - "Apple-Bran Muffins" (#4-5A)
  "Date-Nut Muffins" (#4-5B)
- (Opt.) Small amount of miller's bran in a small, clear plastic bag. (available from health food store)

ACTIVITY:

1. Begin by discussing the objectives in a general way.

2. Distribute copies of the handout entitled "Fiber Facts".

3. Go over the handout in class.

   (Optional) You may want to pass around a small plastic bag of miller's bran. Explain to students that bran is the outer-most layer of grains. It is usually lost in the milling and refining process. Mention that whole grains (rolled oats, brown rice, whole wheat flour, etc.) still have the natural bran layer.

4. Pass out copies of the worksheet "Which Food Has More Fiber?" Allow students time to complete this short worksheet during class. Discuss the correct answers listed below. What makes each of these higher in fiber?
    a. Popcorn
    b. Apple
    c. Peanut butter sandwich on whole wheat bread
    d. Carrots
    e. Shredded wheat cereal
    f. Celery
    g. Sunflower seeds
    h. Re-fried beans

5. Explain to students that they are going to prepare a high-fiber treat. Select one of the two muffin recipes listed in the materials section to make or divide the class into 2 groups and have each group prepare one of the recipes. *Note: Have recipe ingredients/equipment organized ahead of time.

6. As students are sampling the whole grain muffins they have made themselves, ask them to describe the color and texture of the muffins. Can they see the actual flakes of bran? Are the muffins chewy? In addition to the bran, what makes these muffins high in fiber? The muffin recipes can be xeroxed and sent home with children, if desired.

Handout #4-5

fiber facts

f IBER is plant material which is not digested or absorbed in your intestinal tract.

f IBER is not a nutrient (like protein, carbohydrate, fat, vitamins and minerals.

f IBER is an important part of your diet because it provides bulk (or "roughage") which helps your intestines move their contents along in digestion.

f IBER acts like a "sponge" in your intestines by soaking up water which helps to make your stools moist and soft (as well as bulky).

f IBER is found in whole-grain breads and cereals (such as whole wheat bread, shredded wheat, wheaties, rolled oats), bran, dry peas and dry beans (like kidney beans in chili, pinto beans in burritos, lentils), nuts, seeds, and fresh fruits and vegetables (especially those that are unpeeled or have edible seeds).

f IBER is one of the first parts of a whole food to be removed in the process of refining - for example, whole wheat bread has about 8 times as much fiber as white bread made from white, refined flour. Also, the more processed a food, the less fiber it contains. For example, a whole raw apple contains twice as much fiber as applesauce; and apple juice has almost no fiber at all!

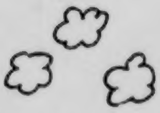
f IBER in your diet (coupled with exercise and lots of fluids) can help prevent constipation - - and possibly other bowel problems and diseases as well.

Worksheet #4-5

Which Food Has More Fiber?

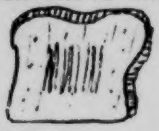
DIRECTIONS: Circle the foods below which contain more dietary fiber.

1. POPCORN or JELLO DESSERT

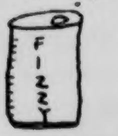


2. APPLE or MARSHMALLOWS

3. PEANUT BUTTER SANDWICH (on white bread) or PEANUT BUTTER SANDWICH (on whole wheat bread)



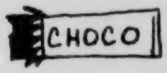
4. SODA or CARROTS

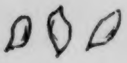


5. DOUGHNUT or SHREDDED WHEAT CEREAL

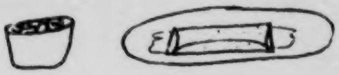
6. CELERY or FRENCH FRIES

7. CHOCOLATE BAR or SUNFLOWER SEEDS





8. RE-FRIED BEANS or HOT DOGS



EQUIPMENT/SUPPLIES:

- Oven
- 2 large mixing bowls
- 2 large spoons for stirring
- Measuring cups (dry & liquid)
- Measuring spoons
- 2 muffin tins
- Paper muffin liners
- Grater
- Knife/cutting board
- Paper plates
- Napkins
- (Opt.) Plastic Knives

Recipes from: Laurel's Kitchen
By Laurel Robertson
Carol Flinders
Bronwen Godfrey
Ballantine Books, 1976.

NAME OF RECIPE: "Apple Bran Muffins"

INGREDIENTS:

- 2 c. whole wheat flour
- 1 1/2 c. wheat bran
- 1/2 t. salt
- 1 1/4 t. baking soda
- 1/2 t. nutmeg
- 1 T. grated orange rind
- 1 c. chopped apple (2-3 medium apples)
- 1/2 c. raisins
- 1/2 c. sunflower seed kernels
- juice of one fresh orange
- scant 2 cups buttermilk
- 1 beaten egg
- 1/2 c. molasses
- 2 T. oil
- (Opt.) butter or margarine

PROCEDURE:

1. Preheat oven to 350°F.
2. In one of the large mixing bowls stir together: flour, bran, salt, baking soda, and nutmeg.
3. Stir in orange rind, chopped apples, raisins, and sunflower seeds.
4. Pour the juice of one orange into a 2-cup measure and add enough buttermilk to equal 2 cups.
5. Put juice/buttermilk mixture, egg, molasses, and oil in the other large mixing bowl and stir thoroughly.
6. Stir liquid ingredients into dry ingredients with a few swift strokes. Batter will be lumpy.
7. Pour carefully into 2 paper-lined muffin tins, filling each paper cup about 2/3's full.
8. Bake for 25 minutes. (Opt.) Serve with butter/margarine.

Yield: 24 muffins.

Recipe #4-5B

EQUIPMENT/SUPPLIES:

Oven
1 muffin tin
Paper muffin cups (1 dozen)
2 large mixing bowls
2 stirring spoons
Measuring cups
Measuring spoons
Paper plates/napkins
(Opt.) Plastic knives

NAME OF RECIPE: "Date-Nut Muffins"

INGREDIENTS:

2 c. whole wheat flour
1/2 t. salt
2 t. baking powder
1 t. cinnamon
1/2 c. chopped dates
1/2 c. chopped walnuts
1 beaten egg
1 c. cold milk
1 1/2 T. oil
(Opt.) butter or margarine

PROCEDURE:

1. Preheat oven to 400° F.
2. In one of the large mixing bowls stir together the flour, salt, baking powder and cinnamon.
3. Add the chopped dates and walnuts to the flour mixture.
4. In the other large mixing bowl beat the egg and stir in the cold milk and the oil.
5. Add the dry ingredients to the wet ingredients and stir them together briefly. (A few lumps are alright).
6. Pour the batter into the paper cup-lined muffin tin. Fill each muffin cup about 2/3's full.
7. Bake muffins for 20-25 minutes. (Opt.: Serve warm muffins with butter or margarine.)

Yield: 12 large muffins.

GENERALIZATION

Food energy is measured in kilocalories. A kilocalorie is a measure of heat that food can produce. The amount of food energy a person takes into his/her body should match the amount of energy s/he expends.

TEACHER'S NOTES

1 Kilocalorie = 1,000 calories

1 Kilocalorie = 4.2 kilojoules
(in metric equivalents)

Lesson #4-6

TITLE: "The Calorie Connection"

OBJECTIVES:

The student will:

- Define "kilocalorie" (Calorie)
- State that carbohydrates, proteins and fat are nutrients that provide kilocalories; vitamins, minerals, water and fiber do not supply food energy.
- Recognize that fats are the most concentrated sources of food energy.
- List 4 reasons for differences in the amount of food required by individuals (age, body size, activity level, physiological condition).
- Recognize that the amount of food energy a person takes into his/her body should match the amount of energy s/he expends.

MATERIALS:

- Handouts (3): "Recommended Energy Allowances" (#4-6A)
  "Edible Energy" (#4-6B)
  "Expendable Energy" (#4-6C)
- Worksheet entitled "C-Saw" (#4-6)

ACTIVITY

1. Begin by asking your students if they know about how much food they need to eat on a daily basis? State that energy is derived from the food we eat and that we burn up energy all day long. Mention that the amount of energy we get from the foods we eat should approximately equal the amount

1. (cont'd.) . . .

   of energy we use up in our daily activities.

2. State that energy can be measured. Ask the class what units are used when a person's weight is measured? (pounds, kilograms). Ask what units are used when height is measured? (inches, centimeters). Ask if anyone knows how food energy is measured? (The unit of measurement for food energy is called a kilocalorie or calorie).

3. Mention that food energy is measured by calculating the amount of heat produced when food is burned. A calorie is a unit of measurement used to describe that heat.

4. State that food energy comes from plant and animal foods. The nutrients in foods that provide energy are fat, carbohydrates and protein. Carbohydrates are digested rapidly and provide "quick energy". Protein is essential for growth and repair of the body, and some fat is needed for the body to function properly.

5. Explain to the class that protein and carbohydrates each contain about the same amount of energy (about 50 calories per tablespoon). In metric units, this represents about 4 kilocalories/gram weight. Fat, on the other hand, is a much more concentrated source of calories. As a matter of fact, fats contain more than twice as many calories as protein or carbohydrates (like sugar). One tablespoon of fat contains around 127 calories. Or, in metric units, one gram of fat contains 9 calories.

6. Explain to students that they need to know roughly about how much energy (calories) they need to eat. State that there is an official government estimate of how many calories people need each day. It's called the Recommended Dietary Allowances (RDA). The RDA tables have been put together by a panel of nutrition experts.

7. Pass out copies of "Recommended Dietary Allowances - - Energy". Instruct students to use the chart to find how many calories they need to eat in a day. Have students compare their energy requirements.

8. Stress that the figures on the energy requirement chart are averages - - everybody is different! The information on the handout is a general guideline, not an absolute rule. Mention to the class that there are a number of factors affecting the energy requirements of different people - - age, body size, activity level, and physiological state (i.e. growth, pregnancy, etc.).

9. Explain to students that they are now going to get an idea of the calorie content (energy value) of some of their favorite foods. Distribute copies of the handout "Edible Energy". Have students discuss the following with regard to the caloric values of:

   a) Skim milk vs. chocolate milkshake
   b) French fries vs. mashed potatoes
   c) White bread vs. white toast
   d) Plain popcorn vs. potato chips

10. Discuss the principle that the amount of food energy (calories) a person eats should be related to the amount of energy expended in a variety of physical activities. Hand out copies of "Expendable Energy". Explain to students that this chart gives them an idea of how much energy is burned in an hour while doing different activities.

11. Distribute copies of the worksheet "C-Saw". Go over the directions aloud and give students 15 minutes to complete the worksheet. These can be discussed during class or submitted to you for comments, etc.

Handout #4-6A

RECOMMENDED DIETARY ALLOWANCES

	AGE	WEIGHT (POUNDS)	HEIGHT (INCHES)	ENERGY (CALORIES)
CHILDREN	1 - 3	28	34	1300
	4 - 6	44	44	1700
	7 - 10	66	54	2400
MALES	11 - 14	97	63	2700
	15 - 18	134	69	2800
	19 - 22	147	69	2900
	23 - 50	154	69	2700
	51 +	154	69	2400
FEMALES	11 - 14	97	62	2200
	15 - 18	119	65	2100
	19 - 22	128	65	2100
	23 - 50	128	65	2000
	51 +	128	65	1800

Handout #4-6B

EDIBLE ENERGY

	AMOUNT	CALORIES
MILK GROUP		
American Cheese	1 oz.	106
Chocolate Milkshake	1 1/3 cups	356
Ice Cream	1/2 cup	135
Skim Milk	1 cup	86
Strawberry Yogurt	1 cup	225
Whole Milk	1 cup	150
MEAT GROUP		
Beef Roast	3 oz.	182
Fried Chicken	3 oz.	201
Fried Egg	large	83
Hamburger	3 oz.	186
Peanut Butter	2 Tbsp.	186
Tuna Fish	3 oz.	180
FRUIT-VEGETABLE GROUP		
Apple	medium	80
Banana	medium	101
Corn	1/2 cup	70
French Fries	20	233
Green Beans	1/2 cup	16
Mashed Potatoes	1/2 cup	63
Orange Juice	1/2 cup	56
Tossed Salad	3/4 cup	13
GRAIN GROUP		
Cornflakes	3/4 cup	72
Hamburger Roll	one	119
White Bread	slice	61
White Toast	slice	61
Whole Wheat Bread	slice	55
COMBINATION FOODS		
Beef Taco	one	216
Cheese Pizza	1/4 of 14"	354
OTHERS		
Butter	1 tsp.	36
French Dressing	1 Tbsp.	66
Milk Chocolate Bar	1 oz.	147
Plain Popcorn	1 cup	23
Potato Chips	10	114
Soft Drink (Cola)	1 1/2 cups	150

EXPENDABLE ENERGY

ACTIVITY:	ENERGY USED PER HOUR:
QUIET THINGS: WATCHING TV, EATING, READING, PLAYING CARDS.	80 - 100 CALORIES
LIGHT ACTIVITIES: WALKING SLOWLY, PRACTICING A MUSICAL INSTRUMENT, DOING DISHES.	110 - 160 CALORIES
MEDIUM THINGS: CLEANING UP YOUR ROOM (REALLY CLEANING IT!), WALKING PRETTY FAST, HOUSEHOLD CHORES, BOWLING, PING-PONG.	170 - 240 CALORIES
ACTIVE THINGS: BIKE RIDING, TENNIS, HIKING, JOGGING, HOCKEY, SOCCER, SWIMMING.	250 - 350 CALORIES

Worksheet #4-6

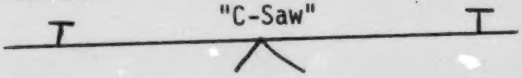
"C"-SAW

THE BALANCING ACT YOU PERFORM!

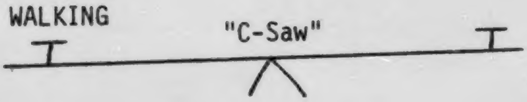
C = CALORIE

DIRECTIONS: "Balance" the activity on the left side of each "C-Saw" with an appropriate snack choice (see lists below). Write your snack choice on the right side of the "C-Saw". (You should use your 2 handouts - "Edible Energy" and "Expendable Energy".)

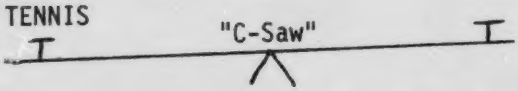
HIKING



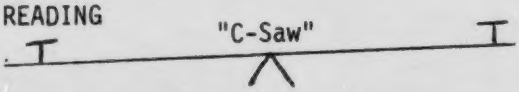
WALKING



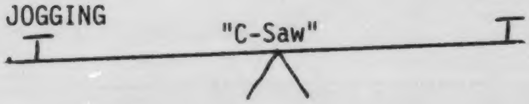
TENNIS



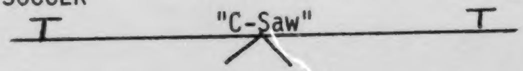
READING



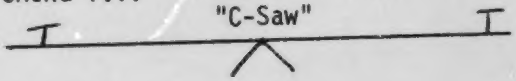
JOGGING



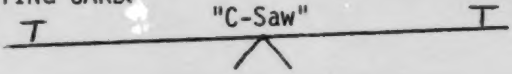
SOCCER



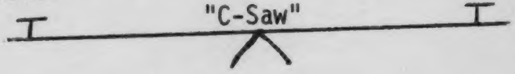
WATCHING T.V.



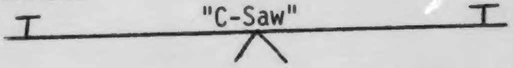
PLAYING CARDS



HOCKEY



SWIMMING



HIGH CALORIE, HIGH NUTRIENT SNACKS:

- Cheese & Crackers
- Peanuts
- Raisins
- Sunflower Seeds
- Pumpkin Seeds
- Milkshake

LOW CALORIE, HIGH NUTRIENT SNACKS:

- Apple
- Banana
- Orange
- Strawberries
- Fruit Juice
- Carrot Sticks
- Plain Popcorn

GENERALIZATION

When food is thrown out, energy and nutrients are wasted. Students can take steps to help decrease food waste in their school lunch program.

TEACHER'S NOTES

Students who bring their own lunches to school could also keep track of food waste. Their figures should be tallied separately, however, and perhaps be shared with parents, rather than with the school food service manager.

TITLE: "The Garbage Can Isn't Hungry!"

Lesson #4-7

OBJECTIVES:

The student will:

- Monitor his/her own food consumption and food waste during school lunch.
- Suggest reasons why people waste food.
- Suggest ways to cut down on food waste during school lunch.
- Meet with the school cafeteria or food service manager to discuss ways to cut down food waste.
- Meet with the school cafeteria or food service manager to plan a nutritious lunch menu that complies with federal school lunch requirements.

MATERIALS:

- Worksheet - "Your Personal Waste Paper" (#4-7)
- Bucket or plastic-lined waste can
- Scale
- Paper for graphing, pencils, etc.

ACTIVITY:

*Note: This activity requries 15-30 minutes of daily class time for a full week. It is best scheduled right after lunch.

1. Begin by asking students how many of them eat everything on their lunch tray every day? How about most of the time? Never?

2. Ask the class to list reasons why people waste food. (Write responses on the chalkboard).

3. State that when food is thrown out, energy (food energy plus

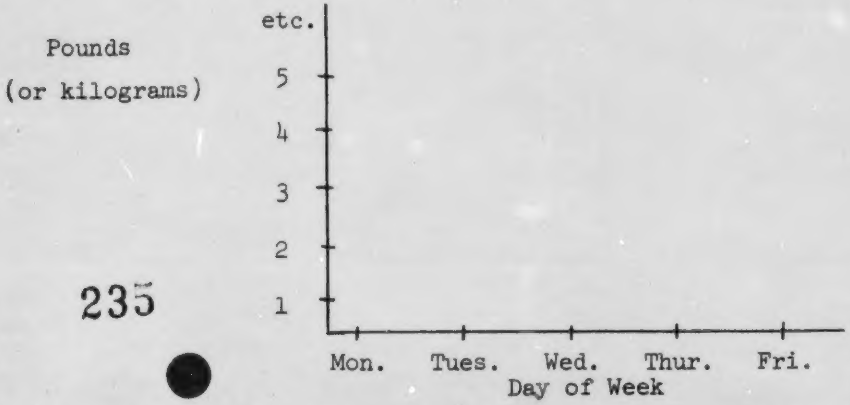
3. (Cont'd.)...

the energy required to make the food) is wasted. Mention that the nutrients (protein, vitamins and minerals) are also wasted.

4. Tell students that this week they will take a closer look at how much (if any) food they waste at lunch. Distribute copies of the worksheet, "Your Personal Waste Paper". Explain that this sheet is designed to help each student keep track of what foods were and were not eaten off his/her lunch tray. Go over the worksheet aloud.

5. If competition motivates your students, divide the class into 2 teams. Have students in each "team" collectively name themselves (i.e. "Cool Cukes", "Nutty Noodles", "Munch Bunch," etc.). For one week record the number of people on each team who ate everything on their lunch trays. (Tally the scores immediately after lunch. A "captain" from each team may want to station himself at the tray return area in the cafeteria/lunchroom to visually inspect trays as they are turned in.)

6. Set up a special "dumping bucket" where students can scrape their lunch scraps. Two or more students should weigh the bucket each day during the week. The weight (to the nearest pound, or kilogram) should be reported to the class immediately after lunch. Students can graph the results on graph paper (bar graph form):



7. After one week has lapsed, set aside classtime to discuss the worksheets. How many students on each team ate all the food on their trays for the entire week? Which food items were most liked? Least liked? (Write these foods on the board.) Have students discuss reasons why food is left on lunch trays and thrown out. **Share this information with the school food service manager.

8. Arrange to have the school food service manager visit your class. Together with this individual, have students discuss ways they can cut down on food waste during lunch. (Some suggestions might be: try new foods; if permissible, ask for less of something they know they won't eat; have a contest to see which class wastes the least food - graph the amount of food wasted in a week in a prominent place in the cafeteria; etc.)

9. Have students plan (along with the school food service manager) a nutritious tasty hot lunch that complies with federal school lunch requirements (these can be discussed and outlined by the food service manager) and that reflects the result of their plate waste study. If possible, this meal should be worked into the menu cycle and served on the lunch line as soon as possible.

10. (Optional) Students can ask school food service personnel to serve one food item (e.g. tossed salad, fruit salad) in large bowls on cafeteria tables. Instruct students to "serve themselves", being careful to take only what they can eat to help cut down on food waste.

Your Personal Waste Paper

Please Don't Feed Me!!
GARBAGE

This sheet of paper will help you keep track of what foods you do and do not eat (if any) off your school lunch tray every day for a week.

Answer the questions below each day after you eat your school lunch.

DAY OF THE WEEK

Monday:

1. Check the correct box below:

   ☐ I ate all the food on my lunch tray today.

   ☐ I did not eat all the food on my lunch tray today.

   The food(s) I did not eat were: ____________________

   ____

   I did not eat them because: ____________________

   ____

2. The food I liked most on my tray today was: ____________________
3. The food I liked least on my tray today was: ____________________

Tuesday:

1. Check the correct box below:

   ☐ I ate all the food on my lunch tray today.

   ☐ I did not eat all the food on my lunch tray today.

   The food(s) I did not eat were: ____________________

   ____

   I did not eat them because: ____________________

   ____

2. The food I liked most on my tray today was: ____________________
3. The food I liked least on my tray today was: ____________________

Wednesday:

1. Check the correct box below:

☐ I ate all the food on my lunch tray today.

☐ I did not eat all the food on my lunch tray today.

The food(s) I did not eat were: ____________________

____

I did not eat them because: ____________________

____

2. The food I liked most on my tray today was: ____________________

3. The food I liked least on my tray today was: ____________________

Thursday:

1. Check the correct box below:

☐ I ate all the food on my lunch tray today.

☐ I did not eat all the food on my lunch tray today.

The food(s) I did not eat were: ____________________

____

I did not eat them because: ____________________

____

2. The food I liked most on my tray today was: ____________________

3. The food I liked least on my tray today was: ____________________

Friday:

1. Check the correct box below:

☐ I ate all the food on my lunch tray today.

☐ I did not eat all the food on my lunch tray today.

The food(s) I did not eat were: ____________________

____

I did not eat them because: ____________________

2. The food I liked most on my tray today was: ____________________

3. The food I liked least on my tray today was: ____________________

GENERALIZATION

Obesity can affect the way the obese person is treated by society which, in turn, can affect the individual's self-concept.

TEACHER'S NOTES

See parent information sheet entitled, "Childhood Obesity." This sheet can be copied and distributed to parents at a PTA meeting or at parent-teacher conferences you hold during the school year.

The opposite of obesity, called anorexia nervosa, is also a problem of great concern during adolescence. A parent newsletter addressing this topic can be found in the Appendix section of this package.

TITLE: "How Does it Feel to be Fat?"

Lesson #4-8

OBJECTIVES:

The student will:

- Describe how he/she would react to one aspect of being obese.
- Explain why exercise and a low calorie diet would help an obese (fat) person lose weight.
- List 2 low calorie snack foods.

MATERIALS:

- Worksheet - "How Does It Feel To Be Fat?" (#4-8)
- Pencils
- Optional: Calorie counter guides

* Prerequisite nutrition knowledge: Understands what calories are, able to name relatively low Calorie foods (optional), understands effects of excess calories.

ACTIVITY:

1. Read the short story "Hey Fatso" (next page) to students.
2. Hand out worksheets and have them complete them. (Define new words e.g. Nutritionist - and have students recall what Calories are.)
3. Discuss the story. Call on volunteers to read their answers to the questions on the worksheet. Be sure to make the following points:
   - Fat people have feelings too-just like you and me.
   - Fat people should be treated just like people who aren't fat.
   - Jimmy could lose weight by increasing the amount of exercise he gets in order to burn up the extra Calories and by going on a diet - (only if his doctor recommends it).

Hey Fatso!

When Jimmy was 9 years old, his family moved to a new town. Jimmy didn't really want to move. He knew that he would have to go to a new school and make new friends. He was worried about that. And when Jimmy was worried he ate a lot of food. Food wouldn't make him worry less, and it didn't solve any problems, but he ate anyway. Cookies, cake, potato chips, leftover spaghetti-Jimmy would eat anything that was handy. All that eating had made Jimmy fat because he hardly ever played ball or ran or got any other kind of exercise which would have helped him burn up all those Calories from food.

The day after the move, Jimmy went to school. As he walked into the classroom, some of the children began to whisper. They wondered who the new boy was. Mrs. Gates introduced Jimmy to the class and he took his seat.

At recess, the children went outside to play. Jimmy went too, but instead of playing he sat down on the bench. Then it happened. One of the boys called to Jimmy, "Hey you - Hey Fasto! I'll race you to that white line over there - I'll bet I can beat you". Jimmy slowly looked up at the boy. He didn't know what to do. Then the other children came over and said, "Yeah Fatso, Let's see if you can run." Jimmy felt like he wanted to leave, but instead he got up and walked to the field where the boy was standing. "Maybe, just maybe, if I really try to I can beat this boy and then maybe they'll stop calling me Fatso" he thought.

One of the girls yelled, "Ready, set, go!", and they were off-heading for the white line at the other end of the field. Jimmy ran as fast as he could. He huffed and puffed his way toward the white line, but the other boy ran much faster. He was way out in front of Jimmy. Within a few seconds, the boy crossed the white line and Jimmy knew he had lost the race. He also knew why he had lost. His extra weight had held him back. It made him feel like he was carrying an extra person around with him.

The bell signaling the end of recess rang and the children went back to class. Jimmy heard whispering behind him for the rest of the day. He even saw some of the children laughing and pointing at him while the teacher's back was turned. He knew they were laughing at him - the fat boy.

When the final bell rang, Jimmy walked home and quickly went to his room. He locked the door and cried. Later he went downstairs and ate a sandwich, a plate of cookies, and a bowl of ice cream for a snack.

Used with permission from: Nutrition in the Social Studies, developed by Tanya Wapensky for the Wisconsin NET Program, 1980.

PARENT INFORMATION SHEET: CHILDHOOD OBESITY

> "Susie was a chubby-cheeked cherub, then became an adorable tubby toddler. But as she grew to be an overweight teen-ager, her dimpled knees and "baby fat" weren't so cute anymore."

It is suggested that up to 20 percent of America's children are overweight. Overweight kids tend to get a lot of negative feedback from their parents, teachers and peers. Many overweight children carry negative feelings about themselves with them throughout their lives.

Experts in the field of childhood obesity believe that many weight problems begin at birth and become increasingly difficult to rectify as a child grows. In one of the most significant research findings on the subject, Dr. Jules Hirsch, professor and senior physician at New York's Rockefeller University, discovered that a thin person has about 27 trillion fat cells in his body, compared to 77 trillion fat cells in the obese person. These fat cells, which convert extra calories into fat with great efficiency, insure that losing weight will never be easy for the obese adult.

Doctors can't make fat cells go away. But they can prescribe changes in diet, exercise and eating behavior, which can "shrink" fat cells and produce a safe, gradual weight loss that won't interfere with a child's linear growth.

How are you , as a parent, to know for certain if your child is obese? Commonly, a youngster is classified as obese if s/he is 20% over his/her ideal weight; however, a child may be overweight for his age, height and sex, without being or becoming obese. It is important to realize that many children add extra weight before a growth spurt - this is normal and acceptable. However, in this information letter we are talking about an obese child. If your child looks fat, and is being taunted by peers, you should seek the advice of a pediatrician. A doctor will be able to rule out any possibility of disease before prescribing an effective therapy regimen.

In more than 98% of all cases of childhood obesity, researchers have found at least one of the following influences is present:

- Genetic: It is known that 50% of children born of one obese parent and 80% of those born of 2 obese parents become fat themselves.
- Physiological: Between birth and 5 years, early overfeeding is believed to result in an increased number of fat cells in the body. By the age of 6 or 7, the obese child may already have more fat cells than a normal adult! These cells may establish forever the tendency to gain weight easily.
- Psychological: When a parent urges a child to "Clean your plate," a life-long association connecting food with approval and affection may begin. Or a parent may use food as a "bribe", or to reward a child for good behavior.

- Environmental: Many factors that lead to obesity are learned from the family. These include habits of eating without being hungry, eating nutritionally deficient("junk") foods, and not getting enough physical exercise.

Once a doctor has determined that a child is obese, and pinpointed the cause(s), s/he will enlist the help of parents in a program of therapy resembling the following:

- Diet therapy: Nagging and lecturing will not work the way positively structuring a child's food habits will. As a parent, you can begin by removing high-calorie food items (such as cakes, pies, cookies, candy, salty snack foods - chips, etc.) from the child's reach (and view). Serve attractive, well-balanced meals that include moderate-sized portions of nutritious foods. A drastic cut in calories is not recommended because the child is still growing and requires the same amount of nutrients as do children of normal weight. A recommended daily pattern for the overweight child should include:

3 servings from the Milk Group:

1 serving equals: 1 c. low-fat (1% or 2%) or skim milk
1 c. low-fat yogurt (plain, unsweetened; fresh fruit can be added at home)
1/2 c. low-fat cottage cheese

2 servings from the Meat Group:

1 serving equals: 2 ounces of cooked, lean meat, fish or poultry
2 eggs
1 c. dried beans or peas

4 servings from the Grain Group:

1 serving equals: 1 slice whole grain bread
1 c. whole grain cereal
1/2 c. cooked cereal, pasta

4 servings from the Fruit-Vegetable Group:

1 serving equals: 1 piece of raw fruit
1/2 c. cooked vegetable
1/2 c. juice

*Avoid fruits canned in heavy syrup!

Remember, too, that the fats a child eats (salad dressings, mayonnaise, margarine, butter, fried foods) are high in calories and their consumption should be reduced.

- Exercise: Set a good example as a parent! If a parent is an exercise enthusiast, a child will get the idea that exercise can be fun. Discourage sedentary activities (especially watching T.V.) and assign a child home chores that will help get him/her up and about.

- Parental Support: Chances are, a fat child's ego is already on the line, so s/he doesn't need any more negative comments. Try building a youngster's self-concept with praise and even an occasional non-food reward: a trip to a museum or zoo, or sports equipment (such as a baseball glove, jump rope, etc.) that will promote activity.

Parents cannot easily control what their children eat outside the home, nor can they lose weight for them. But parental support can make all the difference in determining whether a child grows into a confident, healthy adult.

An excellent reference for parents:

Help for the Overweight Child
by Jurgen M. Wolff and Dewey Life, Ph.D., 1978
Penguin Books, New York, NY
(Available on loan from CESA's 3 and 6)

HOW DOES IT FEEL TO BE FAT?

1. Pretend that you are Jimmy, the boy in the story. Write a short paragraph in this space describing how you felt at school when the other children started calling you "Fatso".

2. How do you think fat people should be treated? (Check one.)

   ____ a. Treat them just like people who aren't fat.

   ____ b. Call them names like "Fatso" so they'll realize what they look like to other people.

   ____ c. Tell them you think they should lose weight because they look a lot better when they are thin.

3. A nutritionist told Jimmy that if he exercised more and stayed on the low calorie diet his doctor approved for him, he would lose weight. Explain why Jimmy would lose weight by completing these 2 sentences:

   Exercising helps Jimmy lose weight because: ____________________

   ____

   ____

   A low calorie diet helps Jimmy lose weight because: ____________

   ____

   ____

4. When Jimmy came home from school, he ate the foods listed at the left for a snack. The number of Calories in each food is shown next to the food. The total number of Calories is very high. In the space at the right, write the names of 2 snack foods which are lower in Calories than the foods Jimmy ate.

Food		2 Low Calorie Foods
Jelly sandwich (1)	150	1. ____________________
Ice cream (1 cup)	260	
Cookies (4)	200	2. ____________________
	610	

(OVER)

5. Why do you think Jimmy ate so much when he came home from school?

6. Use this space to write a short, happy ending for the story your teacher read.

GRADE 5

Grade 5

NUMBER	LESSON TITLES	GENERALIZATIONS	HEALTH CONTENT AREA
5-1	"Quick-Break the Fast!"	Breakfast is an important first source of nutrients for the day. A wide variety of foods can be eaten for breakfast.	Physical Health
5-2	"You Mean There's *Caffeine* in my Cola Drink?"	Large intakes of caffeine can affect a person's health.	Mental Health (Drugs and Nutrition)
5-3	"The Great Sugar Search"	Tooth decay is more likely to occur under certain conditions.	Physical Health
5-4	"The Selling of Super-Goop"	Food purchasing and eating behavior can be influenced by food advertising.	Mental Health (Psychological/ Emotional Aspects of Nutrition)
5-5	"Food Fact *or* Fallacy?"	A food fallacy is an incorrect assumption with regard to food.	Mental Health (Psychological/ Emotional Aspects of Nutrition)
5-6	"Nutrients that Energize - Carbohydrate, Protein and Fat"	A nutrient is a component of food that provides nourishment for the body and which plays a role in the chemical processes involved in the maintenance of life and especially in: the growth, maintenance and repair of tissues, and the production of energy.	Physical Health
5-7	"A Variety of Vitamins from a Variety of Foods"	Vitamins have specific functions in the body that are important for health.	Physical Health

Grade 5 (cont'd.)...

NUMBER	LESSON TITLES	GENERALIZATIONS	HEALTH CONTENT AREA
5-8	"Mighty Minerals"	Minerals have specific functions in the body important for health.	Physical Health
5-9	"Journey Down Your Food Tube"	Digestion is the physical and chemical breakdown of food into smaller units that the body can use.	Physical Health
5-10	"V. Villi Vinkie"	The small intestine (specifically, the microvilli) absorb nutrients (digested from food) which then pass into the bloodstream.	Physical Health
5-11	"Five for Fitness"	A variety of foods should be eaten everyday. Foods can be grouped according to similar nutrient content.	Physical Health
5-12	"Save the Vitamins!"	Certain nutrients can be lost by cooking; there are accepted cooking methods which minimize nutrient loss from foods.	Safety and Consumer Health
5-13	"Eating Low on the Food Chain"	Eating "low" on the food chain can be healthy and energy-efficient.	Community and Environmental Health

GENERALIZATION

Breakfast is an important first source of nutrients for the day. A wide variety of foods can be eaten at breakfast.

TEACHER'S NOTES

TITLE: "Quick-Break the Fast!"

OBJECTIVES:

The student will:

- recognize the importance of eating a good breakfast
- become familiar with a variety of food choices for balanced but quick breakfasts

MATERIALS:

- film: "Eating on the Run"
  (**preview ahead of time)
  (Available on loan from CESAs 1, 2, 3, 4, 5, 6, 11, 12, 13, 14, 15, 16, 17, or DPI)
- worksheet: "Quick-Break the Fast!" (#5-1)

ACTIVITY: (Takes two days)

(Day 1):

1. Begin by asking students if they have ever thought about what the word "Breakfast" means? It means that a person has been fasting (not eating) all night long (for up to 10-12 hours, in some cases) - and it's time to start re-fueling the body for the big day ahead.
2. Ask students if they know what the body's fuel consists of? (Food-protein, CHO, & fat). Explain to your class that re-fueling at breakfast can help them perform and feel better in the morning.
3. Ask your class if anyone has ever skipped breakfast. If so, ask for reasons. (Chances are, some will answer that they "didn't have enough time" - focus in on this).
4. Explain to your class that they are going to learn about ways they can build a breakfast around foods that are ready-to-eat or take little preparation time.
5. Show the film "Eating on the Run."

6. After viewing the movie, ask your students to think about what they would make for a "quick", nutritious breakfast at home. Hand out worksheet entitled, "Quick-Break the Fast!"

7. Have each child write down on the sheet the name of a quick, nutritious breakfast that they would like to try at home. Go over directions on the worksheet with your class. Give students a couple of days to complete step(s) #2-4 (perhaps over a weekend).

8. Establish a due date for the project and tell your students that they will compare their breakfasts and preparation times in class.

(Day 2):

9. When the worksheets are due, post each on a bulletin board or tape on the wall at eye-level for easy comparison.

10. Go around the room and have each student describe his/her quick, nutritious breakfast (have each reflect on the nutritional value of the foods in the breakfast) and then state the preparation time.

11. Rank the "Top 10" breakfasts - these should represent the ones that required the least amount of time for preparation and which are also nutritious (sweet rolls, commercial cupcakes, etc. DON'T count).

12. End by questioning your class if they have learned some new ways to fix a quick, nutritious breakfast. (You may want to xerox the "Top 10" quickie breakfasts and give copies to each student.)

Worksheet #5-1

QUICK!
break-the-fast

1. NAME OF YOUR QUICK, NUTRITIOUS BREAKFAST: ______________________________

2. LIST ALL INGREDIENTS: ______________________________
____
____
____

3. EXPLAIN, STEP-BY-STEP, HOW YOU WOULD MAKE YOUR QUICK BREAKFAST (INCLUDE EVERY DETAIL):

   1. ______________________________
   2. ______________________________
   3. ______________________________
   4. ______________________________

   ETC.

4. NOW, HAVING ALL YOUR INGREDIENTS READY ON THE KITCHEN COUNTER OR TABLE, MAKE YOUR QUICK BREAKFAST AND HAVE EITHER YOUR MOM OR DAD, (OR AN OLDER BROTHER OR SISTER) TIME HOW LONG IT TAKES YOU TO DO IT. (YOUR TIMER SHOULD USE A CLOCK OR WATCH WITH A SECOND HAND).

   RECORD THE AMOUNT OF TIME IT TOOK YOU TO PREPARE YOUR BREAKFAST: ______ MINUTES AND ______ SECONDS.

GENERALIZATION

Large intakes of caffeine can affect a person's health.

TEACHER'S NOTES

Caffeine is a natural ingredient found in coffee, tea, cocoa, and added to some soft drinks. The Food and Drug Administration (FDA) requires it as an ingredient in cola and "pepper" - type beverages and permits it in other soft drinks as well.

Caffeine is a drug which acts as a stimulant to the central nervous system. Although it does not affect all people in the same way, if consumed in large doses, caffeine can cause insomnia, nervousness, irritability and disturbance in heart rate and rhythm.

Some scientists have expressed concern about the behavioral effects of caffeine on children. Many children consume caffeine every day in the form of cola beverages and some other soft drinks. In fact, the amount of caffeine ingested by children is fairly close to the dose that causes central nervous system stimulation in adults. Whether stimulation from caffeine constitutes a health hazard is still uncertain.

Lesson #5-2

TITLE: "You mean there's CAFFEINE in my Cola drink?"

OBJECTIVES:

The student will:

- describe 3 effects of caffeine on the body.
- list 4 different sources of caffeine in foods.
- rank a list of various soft drinks according to their caffeine content using a bar graph.
- cite examples of caffeine - free beverages.
- (Opt.) Name and sample a caffeine - free alternative to chocolate and cocoa. (i.e. carob)

MATERIALS:

- worksheet - "Caffeine" (#5-2)

(Optional):

- Some form of carob (if available)
    - Carob Chips
    - "CaraCao bars"
    - "CaraCoa powder" (cocoa substitute)
- recipe - "Cold Carob Drink" (#5-2)

ACTIVITY:

1. Inform the students of the objectives in a general way.
2. Ask students if they know what caffeine is and in what drinks or foods it is found? State that caffeine is a natural ingredient in coffee, tea, cocoa (and hence chocolate) and cola drinks. Mention that caffeine is sometimes

added to other soft drinks as well.

3. Explain to the class that if caffeine is consumed in large amounts, it acts as a stimulant to the body - that is, caffeine excites the body's nerves and the muscles of the heart. Large doses of caffeine can make a person restless, irritable and "jumpy", as well as cause a person's heart to beat faster. State that if a person drinks a lot of a caffeine - containing beverage before going to bed at night, s/he may have difficulty falling asleep because the body's nervous system is in an excited state.

4. Pass out copies of the "Caffeine" worksheet. Instruct students to complete "Part A" (identification of caffeine - containing foods). Correct answers are: Coffee, choco-bar, tea, cola drink, cocoa.

5. Explain the bar graph exercise ("Part B"). Students are to graph the caffeine-content values of 6 of the 7 different soft drinks listed on the bottom right side of the worksheet. (Note: Dr. Pepper, 61 mg. caffeine, has already been graphed as an example). In terms of comparison, mention to the class that 1 cup of regular brewed coffee contains 110 milligrams of caffeine. Have students answer questions 1 & 2 below the bar graph. (Some examples of caffeine-free beverages include: water, fruit and vegetable juices, fruit nectars, milk, milkshake, "smoothies", etc.).

6. (Opt.) Have students sample carob chips/bars or a beverage made with carob powder (see recipe card for "Cold Carob Drink").

CAFFEINE

Worksheet #5-2

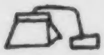
A. Check the following items only if they contain caffeine:

1. ______ COFFEE

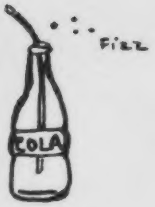
2. ______ FRUIT JUICE

3. ______ CHOCO-BAR

4. ______ TEA



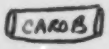
5. ______ COLA DRINK



6. ______ COCOA

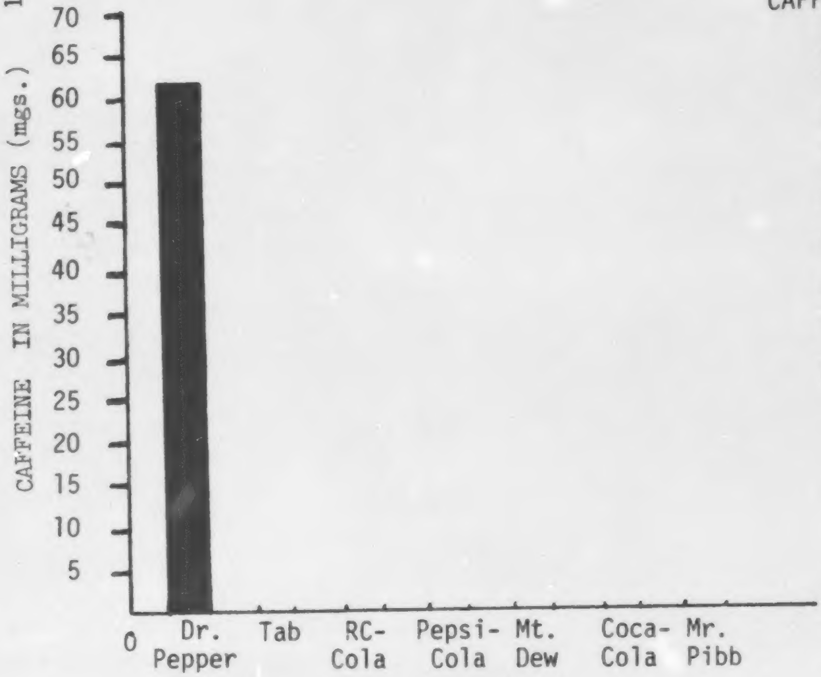
7. ______ MILK

8. ______ CAROB



Note: Carob is a chocolate & cocoa substitue that contains no caffeine.

B. Graph the caffeine-content values (in milligrams per 12 oz.) of the different soft drinks listed on the bottom right of the worksheet. Dr. Pepper (61 mg. caffeine) has been graphed for you as an example.



CAFFEINE CONTENT of SOME SOFT DRINKS:

SOFT DRINK	CAFFEINE (mgs.)
Dr. Pepper	61
Tab	45
RC - Cola	36
Pepsi - Cola	35
Mountain Dew	49
Coca - Cola	42
Mr. Pibb	57

QUESTIONS: 1. Which 3 soft drinks contain the highest amounts of caffeine:

____

2. List 3 examples of caffeine-free beverages:

____

EQUIPMENT/SUPPLIES:

Blender

Paper cups (4 ounce size)

Measuring cups

Measuring spoons

Ice cube trays

NAME OF RECIPE: "COLD CAROB DRINK"

INGREDIENTS:

4 1/2 c.	cold milk
1 1/2 c.	carob powder
4 T.	honey
6	ice cubes

PROCEDURES:

1. Measure out ingredients into blender.
2. Whirl until smooth (a couple of minutes).

Yield: 12 - 1/2 cup servings.

GENERALIZATION

Tooth decay is more likely to occur under certain conditions.

TEACHER'S NOTES

Resources from the American Dental Association which may be helpful:

2 Posters:

1) "So You Don't Think You Eat Much Sugar?"
2) "Find the Hidden Sugar that Promotes Tooth Decay"

Slides:

"How to Tame Your Sweet Tooth"

(This set presents the mechanism of tooth decay in an entertaining and lucid manner; suggests nutritious alternatives to sugary foods.)

Address:

The American Dental Ass'n.
Bureau of Health
Education and Audiovisual Svcs.
211 East Chicago Avenue
Chicago, IL 60611

Lesson #5-3

TITLE: "The Great Sugar Search"

OBJECTIVES:

The student will:

- describe the role of sugar in the production of dental caries.
- name 5 forms of sugar commonly added to foods.
- read food labels to discern which products contain significant amounts of sugar.

MATERIALS:

- handout - "The Tooth Decay Story" (#5-3)
- worksheet - "Tooth Terms" (#5-3A)
- worksheet - "The Great Sugar Search" (#5-3B)

ACTIVITY:

1. Introduce the activity by describing the objectives in a general way.
2. Distribute copies of "The Tooth Decay Story" and the worksheet entitled, "Tooth Terms".
3. Read "The Tooth Decay Story" aloud and ask the class if they have any questions or comments. Tell students that they can refer to the handout while completing the worksheet, "Tooth Terms". (Allow 15 minutes for this.)
4. Review the worksheet in class. The answers are:

   1-d
   2-g
   3-f
   4-a
   5-b
   6-i
   7-c
   8-k
   9-e
   10-h
   11-j

5. Distribute copies of worksheet entitled, "The Great Sugar Search." Read the worksheet instructions aloud Emphasize that students become familiar with the

"other names" for sugar listed on the worksheet so that they will be able to easily recognize these words on food labels. Have students take the worksheets home with them and allow one week for their completion.

6. Set aside (approx.) 30 minutes on the day the worksheets are due to allow students time to present interesting results from their study. Some questions you may want to ask are:

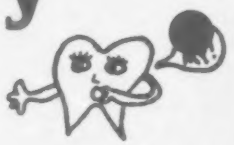
   a) Was anyone surprised to discover sugar added to a particular food product? Ask for examples. (*See note below)

   b) Go around the room and ask individual students to state which foods contained sugar as the first, second or third ingredient.

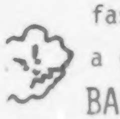
   c) What foods can your students name that do not contain added sugar? (Examples: some milk and milk products - not chocolate milk, milkshakes or ice cream; fresh fruits and vegetables; unsweetened fruit juices; nuts; some cereals: shredded wheat, Cheerios, puffed wheat and puffed rice, Wheat Chex, Grape Nuts Flakes; popcorn).

*NOTE: It is hard to find any kind of prepared food that does not have sugar added. It is present in canned and dehydrated soups, pot pies, frozen TV dinners, bacon and other cured meats, canned and frozen fruits (unless otherwise stated on the label), most breakfast cereals, sweet baked goods, desserts, soft drinks, fruit drinks and some salad dressings.

The Tooth Decay Story



It all begins when the SUGAR in foods you eat mixes with PLAQUE. Just what is PLAQUE, you ask? PLAQUE is a name for all those BACTERIA lurking in your mouth. You know that furry coating on your "chompers" (alias your teeth) when you wake up in the morning? That coating contains lots of fast-growing bacteria. BACTERIA are teeny creatures who think your mouth is a great place to hang-out. They especially enjoy the meal service - - BACTERIA get tasty tidbits of food from what passes through your mouth and gets trapped between your teeth. Anyway, BACTERIA break down the SUGAR you eat and change the SUGARS into ACID. ACID is powerful stuff! It's strong enough to eat away at the ENAMEL protecting your teeth. Then comes . . . the CAVITY (and trips to your family DENTIST).



DID YOU KNOW THAT . . .

1) After ACID forms, the most damage to your teeth is done within the first TWENTY MINUTES after eating sweet foods!
2) The more often you eat foods containing SUGAR, the more ACID forms on your teeth.

SLOW
SUCKER
ALL DAY
LONG

3) High-sugar snacks that stay in your mouth for a long time (such as hard candies, cough drops, slow-dissolving suckers, even sipping soda throughout the day) can feed the BACTERIA and keep ACID production going.
4) Foods that stick to your teeth are especially bad. Soft, gooey, STICKY sweets (like caramels and toffee) can stay on and between your teeth for a long time if you don't get rid of them by good TOOTHBRUSHING & FLOSSING (or at least by RINSING your mouth with warm water if you can't brush).

The Best Solution: Limit the number of times you eat sugar each day. Cut back on the amount of sugar you eat Avoid sticky, sweet snacks! Brush your teeth often - - after every meal and snack, if possible.

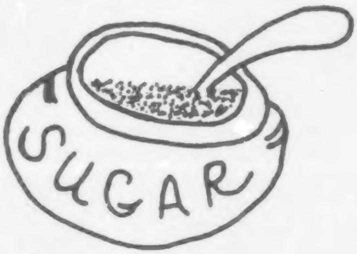
Worksheet #5-3A

TOOTH TERMS

DIRECTIONS: Match each tooth term with its correct definition.

TOOTH TERMS	DEFINITIONS
______ 1. SUGAR	a) a thin, sticky, colorless layer of bacteria that constantly forms on your teeth.
______ 2. ACID	b) these organisms break down sugar in food to change the sugars to acid.
______ 3. ENAMEL	c) the health professional you see for dental check-ups.
______ 4. PLAQUE	d) substance found in some foods that bacteria use to produce acid.
______ 5. BACTERIA	e) the amount of time it takes for the most damage to be done to your teeth after eating sweet foods.
______ 6. CAVITY	f) the protective outer layer of the tooth.
______ 7. DENTIST	g) substance produced by the bacterial conversion of sugar that can destroy tooth enamel.
______ 8. STICKY	h) 2 procedures you should follow after eating food (whenever possible).
______ 9. TWENTY MINUTES	i) another word for tooth decay
______ 10. BRUSH & FLOSS	j) something you should do after eating if you can't brush your teeth.
______ 11. RINSE	k) a characteristic of foods that are especially harmful to teeth.

The Great Sugar Search



You may not realize it, but even if you avoid sugary snacks, you'd get plenty of sugar from the other food choices in your daily diet. First, you need to become aware of other "names" for sugar listed on food labels, such as: honey, sucrose, molasses, dextrose, corn syrup, and corn sweeteners. This worksheet will give you the opportunity to take a close look at food ingredient labels to see how often sugar appears. Take this sheet home and examine the labels on cans, boxes and packages of prepared foods purchased from the grocery store. Check the cupboard (or pantry) and the refrigerator/freezer in your home. Try to find 10 products in your cupboard and 10 from your refrigerator/freezer that have sugar listed in the ingredient panel on the label. **Remember, if sugar (or another one of its names) is listed first in the ingredients, then it is the main item in that food!

A. List 10 foods in your cupboard that have sugar listed in the ingredient list and record the following information for each:

	PRODUCT	BRAND	TYPE OF SUGAR LISTED IN INGREDIENTS	IS SUGAR LISTED 1st, 2nd, or 3rd in the LIST?
(example) 1.	Jello-gelatin dessert	Jello	Sugar	Yes
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

B. List 10 foods in your refrigerator/freezer that have sugar listed in the ingredient list and record the following information for each:

	PRODUCT	BRAND	TYPE OF SUGAR LISTED IN INGREDIENTS	IS SUGAR LISTED 1st, 2nd, or 3rd in the LIST?
1.				
2.				
3.				
4.				
5.				
6.				
7.				
8.				
9.				
10.				

GENERALIZATION

Food purchasing and eating behavior can be influenced by food advertising.

TEACHER'S NOTES

TITLE: "The Selling of Soopergoop" Lesson #5-4

OBJECTIVES:

The student will:

- Explain how food advertisers try to influence food choices made by consumers.
- Decide whether she/he feels TV commercials influence him/her to want certain foods.
- Make a list of criteria for consumers to consider before deciding to buy a particular food.

MATERIALS:

- Film: Soopergoop (Churchill Films)*

*Available on loan from CESAs 3, 6, 11, 12, 13, 14, 15, or 17

ACTIVITY:

1. Begin by asking students:
   - Do you think that commercials on TV or radio can make you want things you don't need?
   - If so, what kinds of things do they make you want?
   - Can you think of any foods that are advertised on TV that you don't really need?
2. Tell the children you have a film for them about food advertising on TV. Ask them to watch it with you now, and to be ready to discuss the film afterward. In particular, ask them to be thinking about this question:
   - Do you think the film tells about advertising "the way it really is", or do you think it's exaggerated?
3. Show the film Soopergoop to students.
4. After the film, ask students for their opinion. - - -

4. (Cont'd.)...

Suggested opinions:

- Do you think that Rodney's commercial for Soopergoop looked or sounded like some of the commercials you see on TV (expecially Saturday morning)?
- If so, how was it similar? If not, why not?
- What kinds of things did Rodney's commercial for Soopergoop say that might make children want to buy it? (makes you grow faster, be more popular, is fun).
- In the film, Rodney, a food advertiser, says, "I can make you want things you don't need." Do you think that's true of food advertisers in the "real world"? (Note: The opening question for this activity is similar to this one - have students changed their minds about their answers since they saw the film?)
- Do you think it's true that "kids will buy anything a Superhero tells them to?" (What are the names of some Superheros you know who advertise foods?)

5. The following questions are designed to get students to think about how they personally are affected by TV commercials:

- Think of some foods you want to buy. What makes you want to buy them? (Taste? Advertising promises?).
- Can you think of any commercials that made you want to try a particular food? Which food was it? What did the commercial say or show you to make you want to try that food?
- Think about cereal commercials you've seen on TV. Name some cereals which have prizes in the boxes, or which tell about toys or games on the back of the box.
- Was there ever a time when you wanted to buy a cereal just to get the prize offered?

6. Conclude by having students make a list of criteria consumers can use to decide whether or not to buy a particular food. (e.g. taste?, cost?, nutritive value?, etc...)

GENERALIZATION

A food fallacy is an incorrect assumption with regard to food.

TEACHER'S NOTES

TITLE: "Food Fact or Fallacy?"

OBJECTIVES:

The student will:

- Recognize some common food fallacies
- Given a list of statements regarding different foods, determine which are factual and which are not.

MATERIALS:

- Sheet entitled, "Food Fact or Fallacy?" (Teacher copy only)
- Worksheet - "Food Fact or Fallacy?" (#5-5)

ACTIVITY: (2 parts)

Day 1:

1. Explain to students that food fallacies are incorrect ideas about certain foods or combinations of foods. Emphasize that food fallacies are false claims about *foods*, not the nutrients (vitamins, minerals, protein, etc.) that they contain. Remind students that nutrients, *not* specific foods, have specific functions in the body that are important for health.

2. Ask the class if anyone has ever heard that: a)certain foods will cure sickness or disease? b) certain foods are good for losing weight/gaining weight? And, c) only "natural" foods can meet body needs and prevent disease?

3. Take out your copy of sheet entitled "Food Fact or Fallacy? Listed are 9 common food fallacies and accompanying factual statements about each.

4. Divide the class into 9 groups and assign *one* different food fallacy (from your sheet) to each group. Each group is to research the validity of their food fallacy. Resources to use include health texts, encyclopedias,etc. Suggest that each group make an effort to contact a dietitian, extension nutritionist/home economist, family doctor, or nurse for information. Give groups ample preparation time -

4. (Cont'd.) ...

(30 minutes classroom time) plus one week on their own. After information is gathered, the groups are to then present their findings in a panel discussion in front of the class.

Day 2:

1. Panel Presentation: Arrange the classroom so that students face the front. (Move a table and 3 chairs or just 3 chairs to the front for panelists' use). Have each group (one at a time) present their findings on their assigned food fallacy. Members of each group should present information on the following:

    a) Possible origin(s) of their particular food fallacy; Why might people believe that the statement could be true?

    b) Present basic errors of the food fallacy. Factual information should be used to discredit the claim (i.e. information about the nutritive value of the food(s) being mentioned, etc.)

2. Following the panel presentations, distribute copies of the worksheet "Food Fact or Fallacy?" Have students complete these in class and go over them aloud. (Answers: 1-Fact; 2-Fallacy; 3-Fact; 4-Fact; 5-Fallacy; 6-Fallacy; 7-Fallacy; 8-Fact; 9-Fallacy)

"FOOD FACT OR FALLACY"

(Teacher's Copy)

1. An apple a day keeps the doctor away.

   FACT: No one food contains all the nutrients needed for good health. A *variety* of foods must be eaten to ensure that a person is receiving adequate amounts of all known (and perhaps *un*known) essential nutrients.

2. Pasteurized milk is "dead milk" and should be replaced by raw milk.

   FACT: The process of pasteurization may destroy a small amount of Vitamin C, but the quantity of Vitamin C in cow's milk is so small that it makes no contribution to the human diet, regardless of pasterization. Control of bacteria by pasteurization and prevention of the spread of disease by this means far outweigh any imagined dietary loss.

3. Citrus fruits such as oranges and lemons make "acid stomach".

   FACT: Glands in the stomach normally produce acid in the presence of food, and citrus fruits have no special influence on this secretion.

4. Onions and garlic will cure a cold.

   FACT: Onion and garlic contain no such powers.

5. Brown eggs are not as nutritious as white eggs.

   FACT: There is no nutritional difference between white and brown eggs.

6. Yogurt, blackstrap molasses, and honey are "wonder foods" and assure good health.

   FACT: Yogurt is simply a fermented form of milk - it has no mysterious properties. Blackstrap molasses is a syrup formed in the process of refining sugar. It contains vitamins and minerals, but so do many other foods in more common use. Honey is simply a form of sugar - no more.

7. Grape juice, beets, and tomato juice are strong "blood builders".

   FACT: The nutrients necessary for the production of red blood cells are protein and iron, neither of which any of these foods supply. This superstition presumably arises from the *color* of these foods; they like blood, are red.

8. Fish is a good brain food.

   FACT: No food *as such* builds any specific tissue or organ. Again, it is the specific nutrients in foods that are required for the building of tissues. Brain tissue, like all body tissues, is built and repaired from protein, and protein is found in many foods, including fish.

9. Gelatin builds strong fingernails.

   FACT: Gelatin is an incomplete protein, which alone builds nothing. Nail formation is influenced by many factors such as general body nutrition, disease, environment, etc.

Worksheet #5-5

Food Fact or Fallacy?

Instructions: Read each statement and place a check in the appropriate column to the right of each statement.

STATEMENT	FACT	FALLACY
1. Orange juice is an excellent source of Vitamin C.		
2. Eating big bowls of Jello will make your fingernails hard and strong.		
3. Yogurt is good for your bones and teeth.		
4. Pasteurized milk contains few harmful bacteria and is very safe to drink.		
5. If you eat lots of garlic your cold will go away.		
6. Drinking grape juice will make your blood bright red.		
7. Two tablespoons of honey a day will keep you healthy.		
8. Fish is a good source of protein.		
9. Brown eggs come from poorly-fed hens and are nutritionally inferior to white eggs bought in the grocery store.		

GENERALIZATION

A nutrient is a component of food that provides nourishment for the body and which plays a role in the chemical processes involved in the maintenance and repair of tissues, and the production of energy.

TEACHER'S NOTES

This lesson is really comprised of three (3) mini-lessons - - one each on carbohydrates, fats, and proteins.

It is strongly advised that you teach each of the 3 "mini-lessons" in 3 different sessions to facilitate easier learning on the part of your students.

TITLE: "Nutrients that Energize - Carbohydrates, Proteins & Fats"

OBJECTIVES:

The student will:

- Define "nutrient"
- Recognize that foods supply nutrients necessary for health
- Recognize that each of the 6 major classes of nutrients (carbohydrates, proteins, fats, vitamins, minerals and water) has specific functions.
- List 2 functions of carbohydrates in the body.
- List 2 functions of fats in the body.
- List 2 functions of proteins in the body.
- Explain what happens when a person eats a lot of carbohydrates.
- Distinguish between and give one example of visible vs. invisible fats.
- Define "essential amino acids .
- Compare animal and vegetable sources of protein.
- Become aware of relative amounts of protein in common foods.

MATERIALS:

- Handout - "Carbohydrates - The Quickest Energizers!" (#5-6A)
- Worksheet - "Adventures of Your Favorite Carbohydrate" (#5-6A)
- Handout - "Compact Fat Facts" (#5-6B)
- Worksheet - "The Brown Paper Bag Fat Test" (#5-6B)
- Scissors
- Brown paper bags - (Additional materials listed on next page)

MATERIALS (Cont'd.)...

- Small amounts of the following foods:
  margarine, whole milk, potato chips, bacon,
  salad dressing, lettuce, carrot, orange, banana,
  beaten egg, fruit juice, cheese, apple, bread, oil.
- Handout - "Proteins - The Stuff You're Made Of!" (#5-6C)
- Worksheet - "How Much Protein Do You Eat a Day?" (#5-6C)

ACTIVITY:

1. Begin by asking students to define the word, "nutrient". Record student responses on the chalkboard. State that nutrients are components of food that provide nourishment for the body and are involved in growth, maintenance and repair of body tissues. Mention that of the 6 major classes of nutrients (have students name these, if possible: vitamins, minerals, water, carbohydrates, proteins & fats), the last 3 are direct sources of energy for the body. Tell the class that they are going to learn about the 3 "Energizers" - carbohydrates, proteins and fats.

2. Distribute copies of the handout "Carbohydrates - The Quickest Energizers!" Go over the handout and pronounce words that may be difficult for students (carbohydrates, glucose, glycogen).

3. Handout worksheet "Adventures of a Carbohydrate...". Allow students approximately 10 minutes or so to complete this. The worksheet should read, "Carbohydrates turn into glucose for Quick Energy! Extra glucose turns into glycogen! This substance is stored in 2 parts of my body: My liver and my muscles. If I have still more glucose, it turns into fat. This is a true story!"

4. Distribute copies of the handout "Compact Fat Facts". Go over this handout in class. Discuss the 2 classifications of fat - visible and invisible.

5. Tell students that they will perform a simple experiment to determine if a particular food contains fat. Hand out the worksheet entitled, "The Brown Paper Bag Fat Test". Instruct students to pair-off. Give each pair of students a different food listed in the materials section of this lesson to test for the presence of fat. Scissors and brown paper bags should be easily accessible to students. Go over the directions on the worksheet with your class. Allow approximately 15 min. for this "experiment".

6. While students are doing the "Brown Bag" test, make a list on the chalkboard of all the foods being tested for fat.

7. When your students have completed the worksheet, go around the room and ask each pair of students to state what food they worked with and whether or not it contained any fat on the basis of their brown bag test. Place a check ✓ by those foods written on the chalkboard which contain fat. When each pair of students has been surveyed, students can copy down (onto their worksheets on the lines provided) the following list of foods that do contain fat: margarine, whole milk, potato chips, bacon, salad dressing, egg, cheese, oil.

8. Pass out copies of "Proteins - The Stuff You're Made of!" Go over the handout in class. Ask students if they have ever heard of anyone eating lots of protein foods to build muscles. Stress that the "formula" for big, strong muscles equals a balanced diet and exercise

9. Distribute copies of "How Much Protein Do You Eat a Day?" Allow students about 15 minutes to calculate approximately how much protein they normally eat. When students have completed this, have a few volunteer the totals they came up with. Ask, "Do you think it is very hard to come up with 45 grams of protein a day?" Most students should answer "No!" Review with students what happens if we eat more protein than we need. (See handout).

10. Summarize by stating that carbohydrates, fats and proteins give us energy, but also serve special functions in the body. All 3 are important nutrients and we must make sure to include them in our diets daily!

"CARBOHYDRATES - THE QUICKEST ENERGIZERS"

Carbohydrates are your main source of energy. Almost half of the foods Americans eat every day are carbohydrates. Foods that have a good supply of carbohydrates are: cereals, bread, spaghetti and noodles, fruits, vegetables, juices, potatoes, corn, peas, sugar, honey and jam. Most of these foods contain sugars and starches, and most come from plants.

When carbohydrates get into your body, they are changed into glucose. Glucose is just what your cells are waiting for! It serves as your body's fuel - - just like gasoline does for cars. Glucose is actually a kind of sugar that is used by your body to produce energy.

Sometimes you might eat a lot of carbohydrates (such as a big spaghetti dinner or pancake breakfast). When your body changes the carbohydrate to glucose, there's more fuel than your body needs right away. What happens? Your body stores the extra (or at least some of the extra for later use). There are some storage places in your body just for this purpose - but they don't hold glucose. First, your body has to change the glucose into another substance called glycogen. Then this glycogen can be stored in your liver and some in your muscles. Your body can store about a 12 to 48 hour reserve of extra glucose as glycogen. Then when you need some extra fuel, your body changes that glycogen back to glucose.

Sometimes there is still more glucose left over after your glycogen storage tanks are full. Your body changes that to fat - - and your body can store lots of fat!!!

Why are carbohydrates the "quickest energizers"? That's because carbohydrates are the first out of your stomach after you eat a meal and on their way to provide energy for your active body!

"ADVENTURES OF A CARBOHYDRATE..."

COMPLETE THE FOLLOWING ADVENTURE STORY:

________________, MY FAVORITE FOOD RICH IN CARBOHYDRATES,
(Draw a picture)

⇨ IS EATEN ________________. YUMMY!
(Draw a mouth)

CARBOHYDRATES TURN INTO ________________ FOR QUICK ENERGY!
(Fill in the blank)

EXTRA GLUCOSE TURNS INTO ________________.
(Fill in the blank)

THIS SUBSTANCE IS STORED IN 2 PARTS OF MY BODY:

MY ________________ AND MY ________________.
(Fill in the blank) (Fill in the blank)

⇨ IF I HAVE STILL MORE GLUCOSE, IT TURNS INTO ________________.
(Fill in the blank)

THIS IS A TRUE STORY! (HONEST!)

SIGNED,

____
(YOUR NAME)

COMPACT FAT FACTS

Fats are the most compact source of energy. One way we measure energy is by the number of calories. An ounce of fat, for instance, has more than twice the number of calories as an ounce of either proteins or carbohydrates.

But fats do more than provide calories. They carry four important vitamins throughout your body (Vitamin A, D, E & K). Fats also insulate and cushion your body. However, many scientists think Americans eat too much fat for their own good.

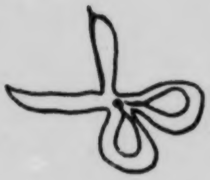
First, fat is fattening (if you eat a lot of fatty foods - like potato chips, french fries, frosted cakes and cream pies) - you may be getting more calories than you need for energy. And guess what happens then?! (You get FAT.) Your body can store an almost unlimited amount of fat. Fat can be "tucked away" under your skin, between muscles, and wrapped around many of your organs.

Secondly, some scientists also think that eating too much fat over a lifetime may be linked to some very serious diseases that may develop as a person grows older (like heart disease, strokes, and some forms of cancer). Do you know someone who has these problems?

Fats are found in lots of different foods. Some of the fats you eat are invisible! (Really!) They're in foods, but you don't see them, like the butterfat in whole milk and cheese, or the fat that's in eggs, meat, nuts,... even avocados! Then there are the visible fats. You may not actually see these yourself, but whoever cooks the food you eat does because they add it - like the shortening in cakes and pies, gravies and sauces, and salad dressings - even the oil used to fry French fries and potato chips!

When you eat, fats are the slowest of all foods to be digested. They can stay in your stomach for up to 4½ hours before being pushed on.

A little fat goes a long way - your body needs it, but only in small amounts!



THE BROWN PAPER BAG FAT TEST!

Directions:

1. Cut a 3" square out of a brown paper bag.
2. Write the name of your food (obtained from your teacher) on the square. Example:

BACON

3. Rub your piece of food on the square until it leaves what looks like a wet spot. Or, if you have a liquid (like milk), put a drop or two on the paper instead of rubbing it.
4. Set the square aside to dry.
5. After your square is dry, hold it up to a light and see if there's a greasy spot. If so, that food contains some fat.

- - - - - - - - - - -

Write the names of all the foods your class tested that do contain fat here:

PROTEINS - THE STUFF YOU'RE MADE OF

Proteins, like all nutrients, are substances that your body absolutely, positively must have! Proteins make up about 3/4's of all the solid matter in your body, including your hair, muscles, bones, brain, fingernails, teeth, etc., etc. Each of these body parts has its own special job, and each protein needed is custom made to both build and repair these parts. However, you can't build muscles by protein alone. It also takes exercise and other foods to develop muscles and keep them strong and healthy!

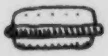
Proteins are some of the world's most complicated substances. There are millions of different proteins! All of them are built from what are called AMINO ACIDS. But there aren't a million amino acids - only 20 of them! Now, you ask, how can 20 amino acids make millions of proteins? Just like you spell millions of words with the 26 letters of the alphabet! Proteins are made by linking together different arrangements of the 20 amino acids. Your body needs all those amino acids, and can even make some of them. But, alas, there are 8 amino acids your body can't make, and it is absolutely essential that you obtain them in food - these 8 amino acids are called essential amino acids!

Generally speaking, animal proteins contain adequate amounts of the 8 essential amino acids, and are called high quality proteins. Some examples are: meat, milk, fish, poultry, eggs and cheese. Vegetable proteins are poorer in quality because they are lacking in one or more of the 8 essential amino acids we talked about earlier. It is possible to combine 2 vegetable sources of protein to meet protein needs. Each source will provide the amino acids that the other is lacking. You must be careful to combine the right types of vegetable protein foods in the right combinations. Examples: beans and corn tortillas, peanut butter on whole wheat bread.

You need about 45 grams of protein a day. But unless you know what makes up 45 grams of protein, that information isn't much use to you, right? See your worksheet, "How Much Protein Do You Eat in a Day?" to see how much protein is in some of your favorite foods. Do you need extra protein if you're going to be doing hard work? No - it won't do you any extra good. If you eat more protein than your body needs, the extra just gets changed into glucose. Then this is either used for fuel, changed into glycogen, or stored as (you guessed it), FAT!

Worksheet #5-6C

HOW MUCH PROTEIN DO YOU EAT A DAY?



Try to estimate how much protein you normally eat in one day using the chart below. (Remember: A person your age only needs 45 grams a day!) I normally eat ____________ grams of protein/day.
(fill in the blank)

FOOD	GRAMS OF PROTEIN
1 egg	6
1 hot dog	7
1 hamburger (no bun) (Twice the size of a McDonald's regular patty)	21
1/2 c. cottage cheese	14
1 oz. cheddar (or other) cheese	7
2 T. peanut butter	7
1/2 c. tuna fish	14
1 slice bologna	7
1 pork chop	14
1 chicken drumstick	7
2 slices bread (or 1 roll or bun)	4
1/2 c. noodles or spaghetti	2
3/4 c. cold cereal (no milk)	2
1 c. milk (any kind)	8
1 scoop ice cream	2
1 carton yogurt	8
Fruits and vegetables	almost none
1 c. cooked beans	7

GENERALIZATION

Vitamins have specific functions in the body that are important for health.

TEACHER'S NOTES

It is important to note that in this lesson, the B-vitamins are grouped together for simplicity's sake but they are really quite different (structurally and physiologically). Two of the "lesser known" B-vitamins, vitamin B_6 (pyridoxine) and folacin are lacking more often in human diets than are thiamin, niacin and riboflavin (which are commonly used in enrichment of grain products).

** Please also note that the following are not vitamins and are therefore not included in this lesson: rutin, vitamin B_{17} , and vitamin B_{15} ("pangamic acid")

TITLE: "A Variety of Vitamins from a Variety of Foods" Lesson #5-7

OBJECTIVES:

The student will:

- Briefly define "vitamin"
- Distinguish between fat-soluble and water-soluble vitamins.
- Recognize that a well-chosen variety of commonly eaten foods in daily meals and snacks will provide adequate amounts of vitamins.
- State 2 functions of the following vitamins in the body: Vitamin A, C, the B-vitamin complex and vitamins D, E, & K.
- List 2 good food sources of each of the vitamins listed in the previous objective.
- Recognize the amount of various foods that can provide his/her RDA for a vitamin.

MATERIALS:

- Handout "Vital Vitamin Information" (#5-7)
- Worksheet "Fitness Functions" (#5-7A)
- Worksheet "Symbolizing Super Sources" (#5-7B)
- Teacher's key to "Symbolizing Super Sources"

ACTIVITY:

1. Begin by asking students to venture a guess as to how many vitamins are known to be needed for good health. How many different vitamins can they name?
2. State that there are about 14 vitamins known to be needed by humans to stay healthy. However, recommended amounts have been established

2. (Cont'd.)...

by nutrition scientists for only ten of these.

3. State that vitamins are chemical substances needed by the body in very small amounts. Vitamins are essential for the release of energy in the body, for body building and for controlling the body's use of food. Emphasize that by themselves, vitamins do not supply energy (calories) or build body tissue. Each vitamin serves one or more special functions in the body that no other nutrient can.

4. Tell the class that 4 vitamins dissolve in fat and are called "fat-soluble". These are vitamins A, D, E, and K. They are digested and absorbed with the help of fats from the diet. The fat-soluble vitamins can be stored in a person's body for long periods of time (mostly in fat and in the liver). Because they can be stored for long periods, you don't need to eat foods containing these vitamins everyday.

5. State that 10 other vitamins are "water-soluble". They include 8 B-vitamins and vitamin C. Mention that these vitamins aren't stored in the body, so you do need to eat foods that are good sources of these vitamins every day.

6. Tell the class that they are going to take a closer look at a few important vitamins in order to see what they're needed for, and where we can get them.

7. Distribute copies of the handout "Vital Vitamin Information".

8. Discuss the handout in class.

9. Hand out the worksheet entitled, "Fitness Functions" Go over the directions at the top. Instruct students not to refer to their "Vitamin Information" handout while completing the worksheet, unless absolutely necessary! Allow students 10-15 minutes to finish the worksheet. Correct answers are: 1-G; 2-D; 3-B,F,H; 4-C; 5-C; 6-B,F,H,A; 7-A,C; 8-A; 9-B,F,H; 10-E; 11-B,F,H; and 12-I.

10. Distribute copies of the second worksheet, "Symbolizing Super Sources". Again, go over the directions with your class. This could be a homework project to be handed in to you at a later date. (A key is provided for you.) Make sure to set time aside later to discuss the worksheets with the class.

OPTIONAL ACTIVITIES FOR ENRICHMENT:

1. Have each student select a vitamin s/he is interested in and, by using school and/or community libraries, find out how the vitamin was discovered. Instruct students to pretend they were reporters living at the time of the discovery. Each student should write a brief newspaper story (250 words or so) reporting the discovery. These stories can be read aloud during classtime as a means of sharing information.

   *An excellent resource for this activity is: The Great Vitamin Mystery by Marvin Martin, Copyright, National Dairy Council.

2. Students can work with your school food service manager and have a "Vitamin Awareness Week". Have students make up small signs with the names of vitamins studied in class and place them on the school lunch serving line above or below the foods which contain these particular vitamins. As students in the school make their lunchtime food selections, they can read the names of the nutrients they will be eating. Students in your class can also make up a catchy slogan for the project and make posters/flyers to put up in school halls and in the lunchroom. Announcements "advertising" the project can also be written for and read over your school's public address (P.A.) system, if available.

Vital Vitamin Information!

VITAMIN A

A

Alias: "The Sight and Skin Saver"

Needed for: Good vision, healthy skin, strong bones & teeth, and wound healing.

Found in: Yellow, orange (not oranges) & dark green vegetables; yellow fruits. (Examples: carrots, canteloupe. sweet potato, spinach, pumpkin, broccoli, winter squash, dried apricots & peaches). Also found in liver, eggs & milk.

Your RDA: 700-1000 R.E. (R.E. = retinol equivalents)

Some Ways to Meet Your RDA: 10 raw carrot sticks, 1 medium stalk of broccoli, 1 baked sweet potato, 1/2 canteloupe or 1 raw tomato.

VITAMIN B

B

Alias: "The Energizers" - Thiamine, Niacin, & Riboflavin

Needed for: Using protein, fat, & carbohydrates; for keeping eyes skin, and mouth healthy; for maintaining healthy nerves, normal appetite, good digestion, growth & muscle tone.

Found in: Meat (especially pork), fish, chicken, ready-to-eat cereals, peanut butter, nuts, milk (especially for riboflavin), whole grains & beans.

Your RDA's: Thiamine - 1.4 milligrams, Niacin - 18 milligrams, Riboflavin - 1.6 milligrams

Some Ways to Meet Your RDA's: 3 oz. pork, 3/4 c. dry cereal plus a peanut butter sandwich on 2 slices enriched or whole grain bread.

** Note: There are also 5 other vitamins in the B-vitamin complex - these are: folacin, vitamin B_6, vitamin B_{12}, biotin, & pantothenic acid.

VITAMIN C

C

Alias: "The Body Binder"

Needed for: Wound healing; for development of blood vessels, bones, teeth & gums; helps your body use Iron from foods.

Found in: Citrus fruits (orange, grapefruit, tangerine), canteloupe, watermelon, strawberries, green pepper, broccoli, cabbage, baked potato, tomatoes.

Your RDA: 50 milligrams

Some Ways to Meet Your RDA: 1/2 c. orange juice, 1 medium stalk broccoli, 1/2 canteloupe, 1 green pepper, 1/2 c. strawberries, 1/2 grapefruit, 1 raw tomato (large), or 1 fresh orange.

VITAMIN D

D

Alias:	"The Sunshine Vitamin"
Needed for:	Using calcium & phosphorus (2 minerals) to build strong bones & teeth.
Found in:	Eggs, butter; added to milk. DID YOU KNOW? YOUR OWN SKIN MAKES VITAMIN D WHEN EXPOSED TO SUNSHINE! (Pretty neat, huh?)
Your RDA:	10 micrograms
Some Ways to Meet Your RDA:	4 cups of milk, playing outside on a sunny day!

VITAMIN E

E

Alias:	"The Powerful Protector"
Needed for:	Protecting your body cells and tissues.
Found in:	Vegetable oils, whole grains, nuts, wheat germ.
Your RDA:	7-10 milligrams alpha-tocopherol equivalents.
Some Ways to Meet Your RDA:	Handful of nuts, whole wheat bread - 2 slices

VITAMIN K

K

Alias:	"The Clever Clotter"
Needed for:	Normal blood clotting
Found in:	Dark green, leafy vegetables; peas, cauliflower, and in whole grains. GUESS WHAT? VITAMIN K IS MADE IN YOUR BODY! (By Bacteria In Your Intestines)
Your RDA:	None (Because you can make it yourself, silly!)

Worksheet #5-7A

FITNESS FUNCTIONS

DIRECTIONS: Match each vitamin function in the left column with the letter(s) of the vitamin (or vitamins) from the list in the right column which best perform that function in your body.

NOTE: Some functions will be performed by more than one vitamin.

FITNESS FUNCTIONS:

_____ 1. Normal blood clotting.

_____ 2. Helps your body use calcium & phosphorus to build strong bones.

_____ 3. Helps your body use carbohydrates, fats & proteins.

_____ 4. Aids in the development of blood vessels.

_____ 5. Helps your body use iron (a mineral) from foods.

_____ 6. Keeps skin healthy.

_____ 7. Helps cuts & scrapes heal.

_____ 8. Maintains good vision.

_____ 9. Maintains healthy nerves.

_____ 10. Protects cells from damage.

_____ 11. Helps you build good muscle tone.

_____ 12. Necessary for over-all good health.

VITAL VITAMINS:

A. Vitamin A

B. Thiamine

C. Vitamin C

D. Vitamin D

E. Vitamin E

F. Niacin

G. Vitamin K

H. Riboflavin

I. All of the above

J. None of the above

Worksheet #5-7B

Symbolizing Super Sources

DIRECTIONS: Draw the appropriate vitamin symbol by every food listed below that is a super source of that vitamin. Example:

Orange juice _✓_ Note: Some food items may have more than one symbol!

LEGEND OF SYMBOLS:

✓ = Vitamin C
☆ = Vitamin A
○ = Vitamin D
□ = Vitamin E
△ = Vitamin K
× = B-vitamins
(thiamin, niacin, riboflavin)

_____ carrots
_____ peanut butter
_____ canteloupe
_____ pork
_____ enriched bread
_____ grapefruit
_____ watermelon
_____ sweet potato
_____ wheat germ
_____ cauliflower
_____ whole grains
_____ milk
_____ strawberries
_____ tomato

_____ green pepper
_____ cabbage
_____ broccoli
_____ fish
_____ liver
_____ winter squash
_____ dried apricots
_____ pumpkin
_____ spinach
_____ vegetable oils
_____ baked potato

Teacher's Key to Worksheet #5-7B

SYMBOLIZING SUPER SOURCES

(TEACHER'S KEY TO WORKSHEET)

★ carrots

X peanut butter

✓, ★ canteloupe

X pork

X enriched bread

✓ grapefruit

✓ watermelon

★ sweet potato

□, X wheat germ

△ cauliflower

□, △, X whole grains

○, X milk

✓ strawberries

★, ✓ tomatoes

✓ green pepper

✓ cabbage

✓, ★, △ broccoli

X fish

★, X liver

★ winter squash

★ dried apricots

★ pumpkin

★, △ spinach

□ vegetable oils

✓ baked potato

LEGEND OF SYMBOLS:

✓ = Vitamin C
★ = Vitamin A
○ = Vitamin D
□ = Vitamin E
△ = Vitamin K
X = B-vitamins
(thiamine, niacin, riboblavin)

GENERALIZATION

Minerals have specific functions in the body important for health.

TEACHER'S NOTES

NOTE ON IRON ABSORPTION:

Current research reveals that the usefulness of iron to the body in such foods as fruits & vegetables, grains, legumes and eggs can be greatly improved by eating a little meat and/or a food containing vitamin C at the same meal.

(As a reminder, foods high in vitamin C include: orange juice, tomato juice, grapefruit juice, oranges, green leafy vegetables, green peppers and tomatoes.)

TITLE: "Mighty Minerals"

Lesson #5-8

OBJECTIVES:

The student will:

- Describe 4 general functions of minerals.
- Distinguish between macrominerals and trace elements.
- List 1 function of calcium & iron in the body.
- Describe the physical consequences resulting from a lack of calcium.
- Recognize anemia as a condition associated with iron deficiency.
- List 2 food sources of each of the following minerals: iron, calcium, magnesium, and zinc.

MATERIALS:

- Handout -"Mighty Minerals" (#5-8)
- Posterboard, oaktag, or construction paper
- Old magazines - have each student bring some from home.
- Scissors
- Glue

ACTIVITY:

1. Begin by stating that minerals are substances that occur in nature - in rocks, soil, and water. Ask students if they can name any minerals.
2. State that the body uses certain minerals for many processes. When certain foods or beverages are consumed, minerals become a part of the body - bones, tissues & fluids (like blood).

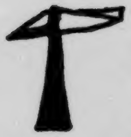
3. Minerals are divided into macro-minerals and trace elements. Macrominerals (macro = large) are found in large amounts in the body and in food. Calcium, phosphorus, magnesium, potassium and sodium are macrominerals. Trace elements are just as important to your body's health as the macrominerals. Some examples of trace elements are iron, copper, and tin.

4. Distribute copies of the handout "Mighty Minerals". Go over the handout in class.

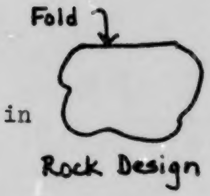
5. Stress to students that of all the minerals, calcium and iron are perhaps the most important to their health. Have the class speculate as to the health consequences of a diet lacking in foods high in calcium (i.e. milk products). State that the body needs a constant level of calcium, and if it doesn't get calcium from foods, it "robs" its own bones to obtain the mineral. This can result in weak bones that break easily.

6. State that a lack of iron in the diet (or excess blood loss or rapid growth) can result in a condition called anemia. This condition is characterized by paleness, chronic tiredness, and a "run down" feeling. Re-emphasize that eating iron-rich foods along with an excellent source of vitamin C or a small amount of meat is the best way to maximize the amount of iron you get from foods.

7. Have students select a mineral (preferably iron or calcium) and make a collage or poster of different foods which are good sources of that nutrient. Students should use pictures of food cut out from old magazines and can glue these pictures onto oak tag or poster board. These collages can be made into a bulletin board display with captions reading, "Iron't You Glad You Ate Enough Iron Today?" "Bone-Up On Good Calcium Sources", etc.



8. (Optional) Another bulletin board display your class may want to create could be entitled, "Minerals - Take Your Pick". A few students could cut a pick hammer out of construction paper. On it write, "Which Mineral Does the Job Described on the Rock? To Find the Answer, Pick Up the Rock!" This should be posted at the top of the bulletin board. Meanwhile, other students could fold 11 sheets of construction paper in half and cut a rock shape out of each; they should make sure that the 2 halves remain hinged at the top, however!



On the top of each rock, students can write one of the following phrases describing what a particular mineral does. On the inside, the name of the proper mineral should be written. The "rocks" can then be pinned to the bulletin board so the top flap can be lifted up to reveal the name of the mineral underneath.

- For strong bones & teeth (Calcium, Phosphorus)
- For bones & muscles (Magnesium)
- Helps turn food into energy (Magnesium)
- Helps prevent cavities (Fluoride)
- Regulates body water (Sodium, Potassium)
- Helps carry oxygen in your blood (Iron)
- Needed to make a thyroid hormone (Iodine)
- Needed to prevent goiter (Iodine)
- Needed to prevent anemia (Iron)
- For growth, taste, and wound healing (Zinc)
- Works with iron to make healthy red blood cells (Copper)

Handout #5-8

MIGHTY ★ MINERALS

1. Minerals which are part of bones & teeth: Calcium, magnesium, phosphorus and fluoride.

⇨ CALCIUM makes bones and teeth strong and sturdy and is found in milk, cheese, yogurt.

⇨ MAGNESIUM helps bones and muscles do their work, and helps turn food into energy. It also helps your body use certain vitamins. You can get this mineral in nuts, seeds, dark green vegetables & whole grains.

⇨ PHOSPHORUS works with calcium in making bones and teeth. Phosphorus is very plentiful in the typical American diet.

⇨ FLUORIDE is also important for strong bones & teeth. It helps prevent cavities. Many of us get fluoride from drinking water.

2. Minerals that regulate body water: Sodium, potassium.

⇨ SODIUM & POTASSIUM help keep the right amounts of water inside your cells - while keeping the rest out. Did you know that more than half your body is water?

3. Minerals that make body materials include iron & iodine.

⇨ IRON carries oxygen in your blood. The best sources of iron are meats. But foods from some plants - like beans (kidney, pinto, etc.) green leafy vegetables, and grains - are good sources of iron, especially when eaten along with foods rich in vitamin C. (A good example is drinking orange juice along with whole wheat toast for breakfast in the morning.) The vitamin C helps your body absorb iron better!

⇨ IODINE is needed to make a hormone produced by your thyroid gland, which helps control growth. Many years ago people in certain areas of the country worried about getting a disease called goiter because they didn't get enough iodine from the soil. But now you don't have to worry because iodine is added to salt and because we get our foods from many parts of the country.

4. Trace Elements (there are more than 17 of these). Zinc & copper are two important ones.

⇨ ZINC helps you grow, taste, make proteins, and heal wounds. You get zinc in whole grains, beans (kidney, pinto, etc.), meats (especially red meats), shellfish (like oysters), eggs and in many more foods.

⇨ COPPER, along with iron, is important for making healthy red blood cells. It also helps build muscles. Good food sources are fish, meats, nuts, and raisins.

GENERALIZATION

Digestion is the physical and chemical breakdown of food into smaller units that the body can use.

TEACHER'S NOTES

Resources:

*1. Scott-Foresman
Health & Growth: 5
p. 142-147
(Diagrams are very helpful)

2. What's to Eat? And Other Questions Kids Ask About Food, USDA Yearbook, 1979.

3. Nutrition in a Changing World-Unit 1: "Your Body and Nutrients", The Pennsylvania State University, 1978.

4. Allison, L., Blood and Guts: A Working Guide to Your Own Insides, Boston: Little, Brown and Company, 1976.

*5. "Down, Down, Down," (The Digestive System) from The Inside Story with Slim Goodbody, Health Education Instructional Television Programs. (For more information contact your WI ETV Regional Service Unit.)

* Recommended for use in conjunction with this lesson.

TITLE: "Journey Down Your Food Tubes" Lesson #5-9

OBJECTIVES:

The student will:

- Define "digestion".
- Trace the pathway of digestion through his/her body.
- Identify body parts involved in digestion and discuss their functions.
- Demonstrate that digestion of food begins in the mouth.
- Demonstrate protein digestion by performing a simple experiment.

MATERIALS:

- Handout - "Journey Down Your Food Tubes" (#5-9)
- Worksheet - "My Transparent Self" (#5-9)
- Soda crackers (1 per student)
- Small amount of raw hamburger
- 2 glass jars
- Adolf's meat tenderizer
- Spoon

ACTIVITY

1. Begin by asking the class to describe digestion - - which parts of their bodies are involved? What is the purpose of digestion?

2. Distribute copies of the handout "Journey Down Your Food Tubes". The class should proceed to read this "story" of digestion together - perhaps you or student volunteers

2. (Cont'd.)...

could read each section aloud.

3. After someone has read aloud the section entitled, "The Groovy Grinder...," tell students that they are going to be given the opportunity to demonstrate that digestion of carbohydrates does indeed begin in the mouth. Pass out one soda cracker to each member of the class. Instruct students to chew the cracker and hold it in their mouths for about 5 minutes. After 5 minutes have lapsed, ask students how the cracker tastes now? How would they describe the change? State that this experiment demonstrates the action of an enzyme in saliva called "Amylase" (Write this on the blackboard) that breaks down starch to sugar. Since the cracker is a starchy food the enzyme in saliva acts on it, resulting in a sweet taste after the cracker has remained in the mouth over a period of time.

4. Proceed to read aloud the next 2 sections of "Journey Down Your Food Tubes." After completing the paragraph entitled, "The Small Intestine..." explain to the class that they will again perform an experiment; this time they will demonstrate protein digestion.

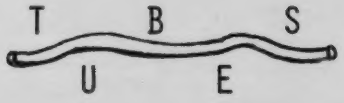
5. Have ready a small amount of hamburger, divided into portions, 2 glass jars, spoon, and Adolf's meat tenderizer. Ask for 2 student volunteers to help you set up the experiment:

   a) One student should place one of the portions of hamburger into one of the glass jars. The jar should then be filled with water. Label the jar "WATER".
   b) Another student should put the remaining portion of hamburger plus one teaspoon of meat tenderizer in the other glass jar. The jar should then be filled with water. Label this jar "ENZYME". *Explain to students that the tenderizer contains an enzyme which helps digest protein (like hamburger).
   c) After 24 hours, have the class examine both glass jars. Ask the students which meat changed the most. Why?

6. Read the final section of the handout ("The Large Intestine...").

7. Pass out copies of the worksheet, "My Transparent Self". Have students complete the worksheets in class (they may use their handouts) and allow time to discuss the answers given.

"JOURNEY DOWN YOUR FOOD TUBES"



(THE STORY OF DIGESTION)

Digestion is the process by which your body changes the food you eat into usable forms for body building and fuel. Let's follow food from the time it enters your mouth to when it leaves your body and see just what happens at each step along the way:

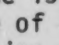
THE GROOVY GRINDER AND SLIPPERY SLIDE: YOUR MOUTH AND ESOPHAGUS!

Have you ever noticed what happens when you bite into food? Saliva suddenly starts to pour into your mouth. Saliva plays 3 important roles in digestion. First, it keeps everything in your mouth moist - that makes food easier to chew and swallow. Saliva also helps to begin breaking down food (in particular, starchy foods) into its nutrients. It does this with chemicals called enzymes. And, finally, saliva helps food slide down the tube from mouth to your stomach. This tube is called the esophagus and it's lined with muscles which force food downwards. The trip down your esophagus to your stomach doesn't take very long - only about 1 second for liquids, and solids take 6-7 seconds.

THE BIG MASHER: YOUR STOMACH!

When your stomach receives the food you've swallowed, it gets to work on it right away. It mashes it, churns it, and pulverizes it. When your stomach is empty, it looks like a deflated balloon. When you eat, it begins to fill up and can hold almost 2 quarts when full! While your stomach is mushing your food, it's adding digestive juices that help breakdown the food into nutrients. These juices contain hydrochloric acid (a very powerful acid) which is useful in breaking down food and changing it into a yellowish mush called "chyme". This phase of digestion can take as long as 3 or 4 hours! The soupy mush (chyme) then moves along to the next step, the small intestine.

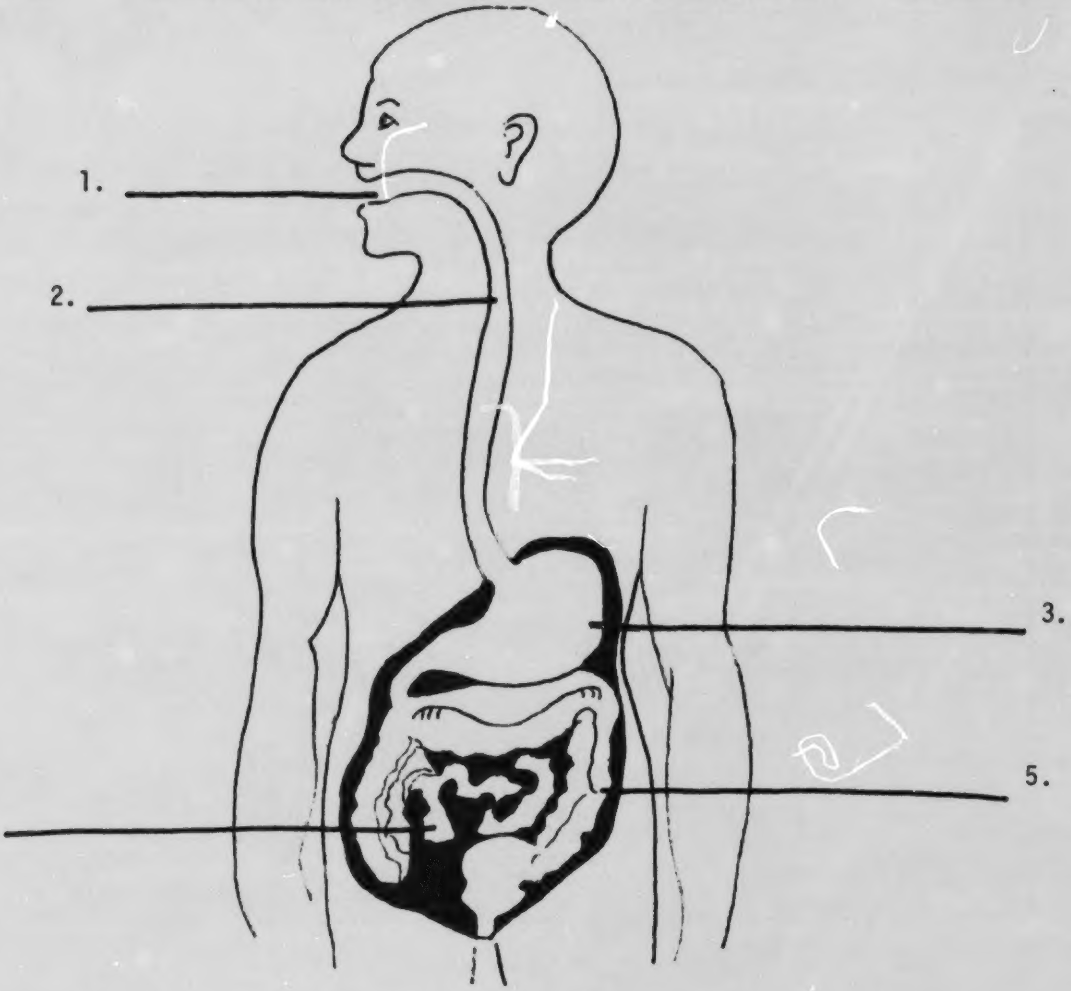
THE SMALL INTESTINE THAT ISN'T SMALL AT ALL!

The small intestine is a tube about an inch and half in diameter, coiled in your body like a pile of rope. Uncoiled, it's more than 20 feet long! Your small intestine is where most of the chemical digestion of your food takes place. The small intestine pushes along the yellowish chyme (which is squirted out in small amounts by your stomach) and mixes it with more digestive juices and enzymes. These enzymes break down proteins, carbohydrates and fats. Part of the job of your small intestine is to separate what your body can use from what isn't useful and will be discarded as waste. To do this, your small intestine has a built-in "filter system"! The inside of the small intestine is lined with millions of tiny, soft, hairlike projections, each about the size of a comma on this page. They are called "villi". Altogether, these villi comprise a sort of "shaggy carpet". Each of the villi has a tiny blood vessel in it. As food gets pushed along in your small intestine,the villi take what your body can use (nutrients) into your blood stream by absorbing them through their tiny blood vessels. Some of these nutrients go directly to your liver; the rest go to other parts of your body. Did you know that it takes anywhere from 3-8 hours to get a meal entirely through your small intestine?

THE LARGE INTESTINE THAT ISN'T SO LARGE!

What your body can't use gets pushed all the way to the end of the small intestine and into the large intestine. About 10% of the food you eat winds up as waste. Your large intestine is only 5 feet long, but it's a fatter tube than your small intestine, being two and a half inches in diameter. It's curved around the pile of your small intestine like an upside-down U. What goes into the large intestine stays there for 10-12 hours. During that time, most of the water gets absorbed - by the large intestine itself and by the fiber from your food, which softens the waste making it easier to move. This leaves solid waste which is eventually expelled through your rectum. And that's the end of the journey through your FOOD TUBES!!

MY TRANSPARENT SELF



DIRECTIONS: Label the parts of your body (above) involved in digestion and list the functions of each part in the spaces provided below.

BODY PART:

1. ______________ Functions: ____

____

2. ______________ Functions: ____

____

3. ______________ Functions: ____

____

4. ______________ Functions: ____

____

5. ______________ Functions: ____

GENERALIZATION

The small intestine (specifically, the microvilli) absorb nutrients (digested from food) which then pass into the bloodstream.

TEACHER'S NOTES

This lesson has been designed to introduce students to the various processes that occur in the small intestine. (Note: This lesson should serve as a sequel to a lesson on digestion). Vocabulary has been presented that will be basic to students' understanding of the absorptive process.

A simplified description of the appearance of VILLI hss been presented in the lesson. You may find it beneficial to read the following more detailed description of the small intestine's absorptive units!

The lining of the small intestine is composed of finger-like projections covered with a single layer of cells. Each projection is called a VILLUS; the plural form of villus is VILLI. As a group, villi act to increase the surface area of the small intestine, thereby allowing more area through which nutrients can be absorbed. Along the free edge of the cells covering each villus are more tiny projections. These are called the MICROVILLI or "brush border". They serve to increase the surface area of the small intestine even more.

Title: "V. Villi Vinkie" Lesson #5-10

OBJECTIVE:

The student will:

- Discuss the processes that occur in the small intestine leading to the absorption of nutrients.

MATERIALS:

- Handout - "Vital Villi Vocabulary" (#5-10A)
- Handout - "V. Villi Vinkie" comic strip. (#5-10B)
- Worksheet - "V. Villi Vinkie" (#5-10)
- Scissors
- Curly ribbon used for gift wrapping

ACTIVITY:

1. Begin by explaining to students that they will be learning about the processes that occur in their small intestines leading to the absorption of nutrients. To do this they will be reading a comic strip!

2. Distribute copies of the handout entitled, "Vital Vocabulary" Explain to students that their brains will need to "absorb the meanings of these terms in order to better understand nutrient absorption that occurs in their guts! Review the words before passing out the second handout "V. Villi Vinkie".

3. Distribute copies of "V. Villi Vinkie". Perhaps one of your students would like to read aloud the part of V. Villi Vinkie as it appears in the comic strip frames.

4. When you come to the section of the handout where surface area is discussed, you may desire to further elucidate this concept through the use of curly wrapping ribbon. Take a piece of straight ribbon and show it to the class. As you demonstrate the following, say: "A piece of this ribbon is quite long when first cut out

but after it has been run over by a scissors it will curl up and appear smaller. The amount of ribbon is still the same but can now occupy a smaller space lengthwise. A foot of straight ribbon has much less surface area than a foot of curled ribbon, which when stretched out, measures many feet in length." (You may want to demonstrate this last relationship between curly and non-curly ribbon.)

*Emphasize that increased surface area permits the small intestine to make more contact with nutrients and allows a larger number of nutrients to be absorbed!

5. Have the class finish reading the handout. Pass out the worksheet "V. Villi Vinkie" and allow 15-20 minutes for its completion. A discussion after the worksheets are completed will be helpful in terms of reinforcing major concepts. Listed below are suggested answers to worksheet questions.

Answer Key:

1. & 2. Drawings will vary, but should represent increased surface area.

3. Because they add to the surface area of the small intestine and this allows absorption to occur more efficiently.

4. The nutrients pass into the blood stream and are carried to cells.

5. Blood cells, muscle cells, skin cells, bone cells, etc.

6. Increased surface area permits the small intestine to make more contact with nutrients and allows a larger numbers of these nutrients to be "soaked up" or absorbed.

This lesson was adapted from the curriculum, Nutrition in a Changing World, I-1-7 "V. Villi Vinkie" pp. 106-114.
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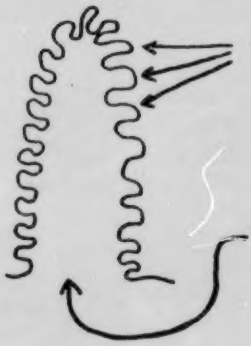
Handout #5-10A

VITAL VILLI VOCABULARY

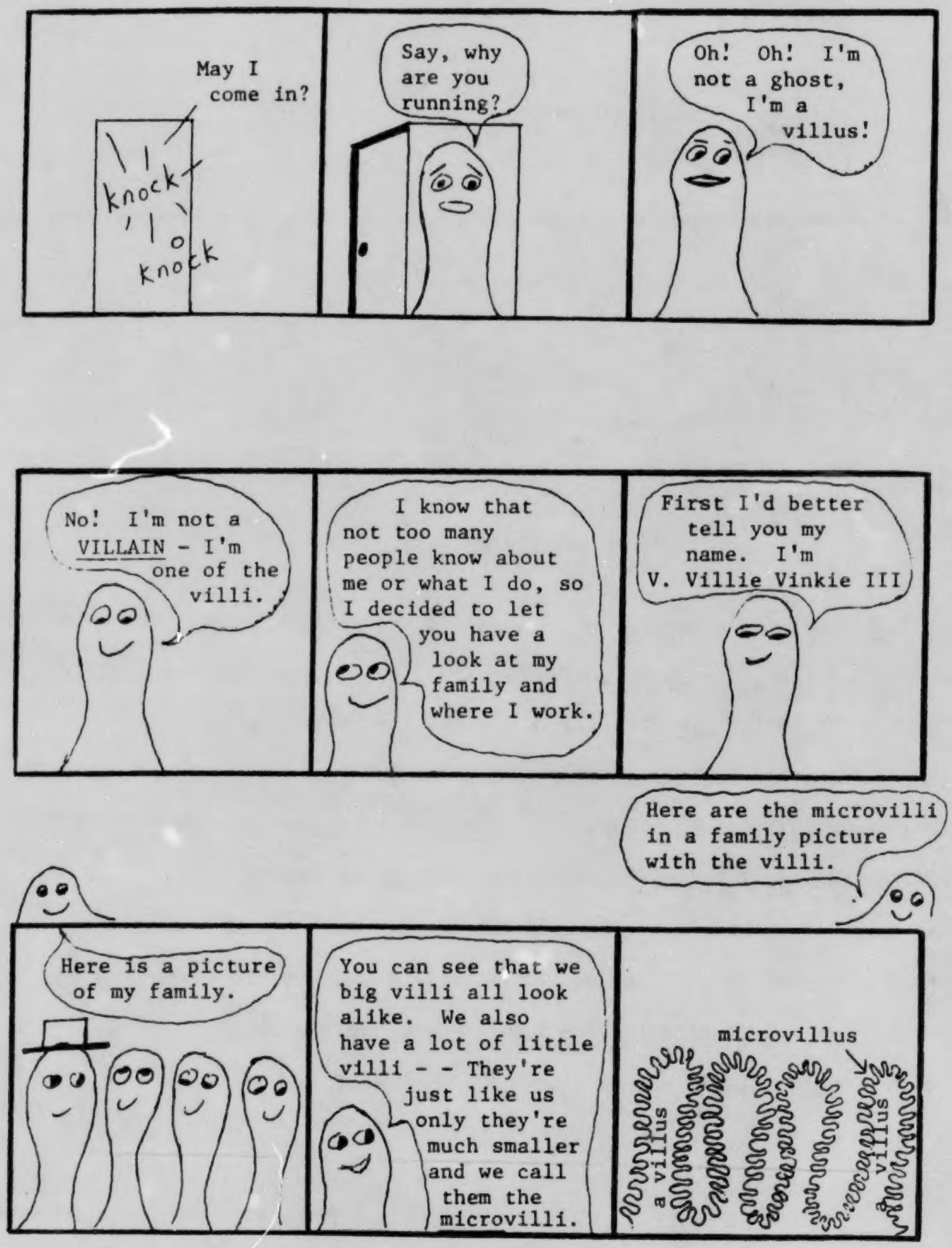
ABSORPTION:	The "soaking-up" of nutrients and other materials through the villi of the small intestine or sometimes the lining of the stomach.
AMINO ACIDS:	When proteins are digested, they are broken down into amino acids, the "building blocks" of proteins.
CAPILLARIES:	Tiny blood vessels.
GLUCOSE:	A simple sugar resulting from the digestion of carbohydrates.
MICROVILLI:	Tiny, finger-like projections (extensions) on the outside edges of villi (see below). Microvilli are the "shag carpet" of the villi.
NUTRIENT:	A nourishing substance found in food having specific functions in the body. A nutrient is usually a material which your body can't supply in sufficient amounts to meet its needs. Carbohydrates, proteins, fats, vitamins, minerals and water are all classes of nutrients.
VILLI:	Small, finger-like projections that line the walls of the small intestine. The outside edges of villi are covered with microvilli (see above), much like a shag carpet.

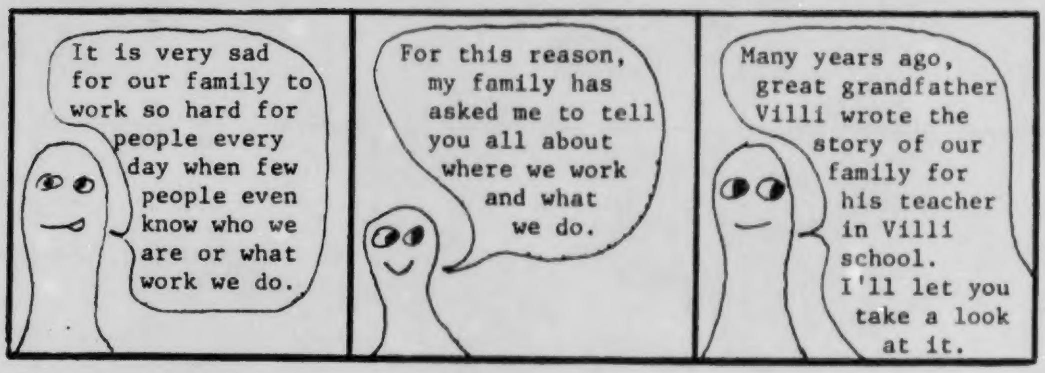


These little guys are "microvilli".

This big dude is a "villus".
(plural = villi)

V. VILLI VINKIE


May I come in?
knock knock
Say, why are you running?
Oh! Oh! I'm not a ghost, I'm a villus!
No! I'm not a VILLAIN - I'm one of the villi.
I know that not too many people know about me or what I do, so I decided to let you have a look at my family and where I work.
First I'd better tell you my name. I'm V. Villie Vinkie III
Here are the microvilli in a family picture with the villi.
Here is a picture of my family.
You can see that we big villi all look alike. We also have a lot of little villi - - They're just like us only they're much smaller and we call them the microvilli.
microvillus
a villus
a villus


It is very sad for our family to work so hard for people every day when few people even know who we are or what work we do.
For this reason, my family has asked me to tell you all about where we work and what we do.
Many years ago, great grandfather Villi wrote the story of our family for his teacher in Villi school. I'll let you take a look at it.

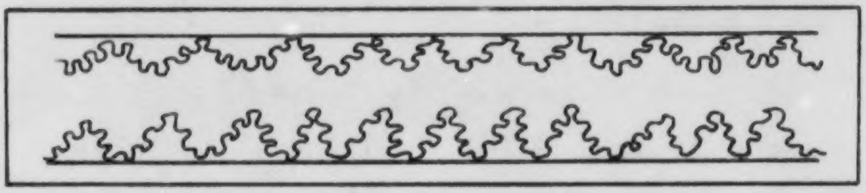
MY FAMILY

by

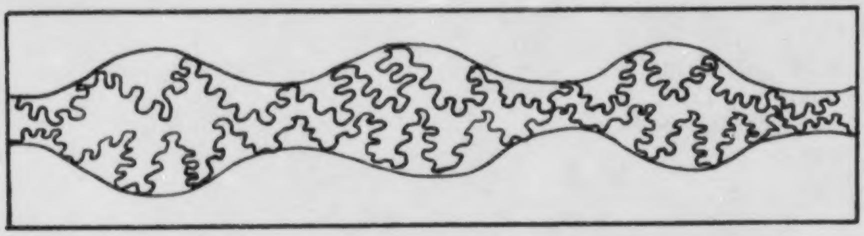
V. Villi Vinkie I

I come from a very large family. There are millions of big villi and there are even more of the small villi. We call the smaller villi microvilli. We all live in the small intestine of human bodies. There are other villi that live in the small intestine of animal bodies and other parts of the body, too. We are very important. We help all of the food that has been digested to get out of the small intestine and into the blood stream. After all, what good is it to eat all of that food and never have it get out to where it has to do its work? Living in the small intestine is very interesting. We see all sorts of things going on and usually we are a part of the action.

I said that we live in the intestine. Well, that is like saying that we live in Wisconsin without saying where in Wisconsin we live, like Madison or . . . We live along the wall of the small intestine. I'll draw a picture so you can have a better idea.

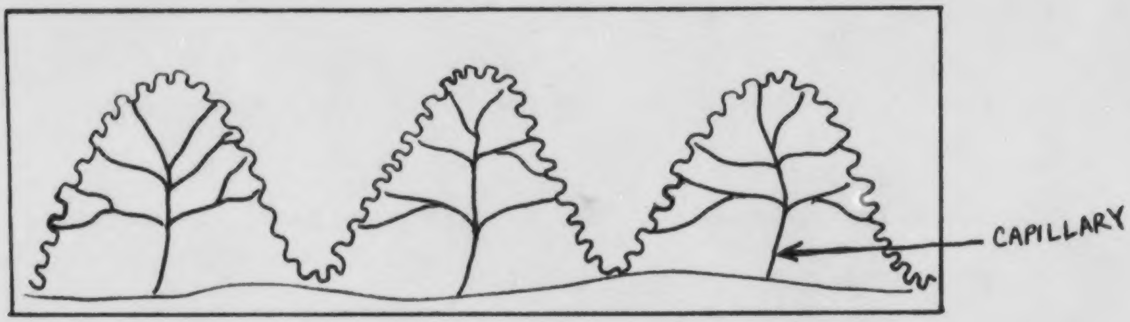


Living in the small intestine is sometimes like living in the middle of an earthquake zone. Everytime some food comes through, the walls of the small intestine move in and out and we move in and out with the wall since we are living right on the wall. I'll draw a picture of this so you can understand a little of the action that happens in there.

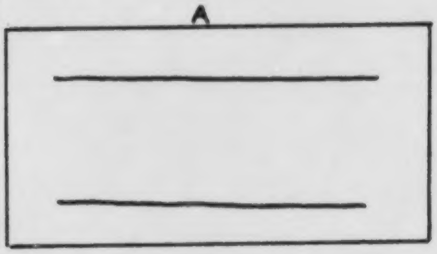


When the food starts coming through from the stomach we really have to get busy. If we don't get to work all those nutrients will pass through and not be able to be used by the body. While the walls are moving in and out and up and down, we get quite a ride but we also work like crazy. The food lies on top of us and it is our job to soak up those nutrients and pass them out to the blood stream. I'll draw another picture.

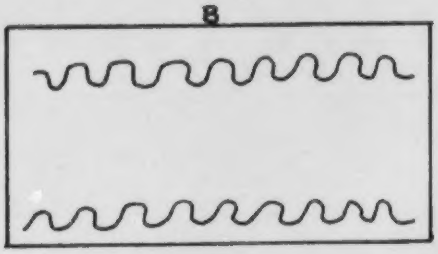
(See next page.)



The small intestine really needs us to get the nutrients to the blood. We give the small intestine a thing called more "surface area". Take a look at the drawings and see if you can understand what I mean by more "surface area".

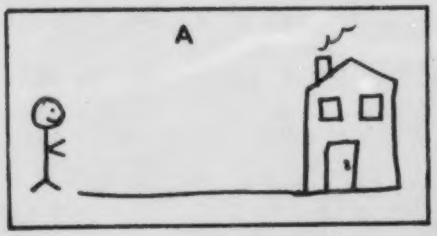


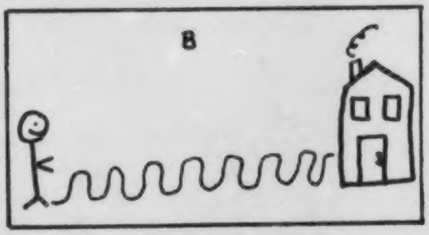
Small intestine
without villi -
less surface area for
food to pass over



Small intestine
with villi -
more surface area for
food to pass over

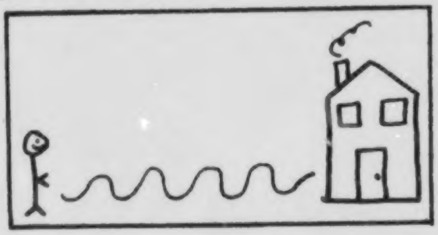
Circle the picture that shows the fastest way for the person to get to the house.

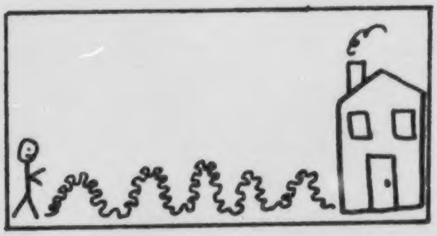




Picture A is the shortest way because that person doesn't have to walk up and down the hills. The person in picture B has to walk more to get to the house. That person has to cover more surface area.

The microvilli help us to have even more surface area. Look at the pictures below.





With more surface area, we can soak up, or absorb, more nutrients at the same time. We work hard to help the nutrients get to the blood.

YOU AND CELLS

Once the nutrients have been soaked up (absorbed) by your intestinal villi, they enter the blood vessels. These blood vessels go to all parts of the body. The nutrients are carried farther into a vast network of tiny vessels called capillaries. The capillaries stretch out in all directions to reach the more than 100 trillion cells in your body. Now the real work begins, feeding all your cells from your eyeballs to your toes!

Different groups of cells make up different parts of your body - like your bones and your skin, and your muscles and your blood. You must be thinking that all these cells are pretty small dudes. You're right! In fact, it would take about 40,000 of your red blood cells to fill this letter O. It's important to remember that each group of cells has its own unique job to do in your body.

All of these cells need NUTRIENTS to do your work for you. And where do you think they get these nutrients? That's right - from the food you eat with the expert help of V. Villi Vinkie and his family!!!

V. VILLI VINKIE WORKSHEET

*COMPLETE THE FOLLOWING QUESTIONS:

1. Draw a picture of the villi in the small intestine.

2. Draw the microvilli ("shag carpet") on your picture of the villi. Label the villi and the microvilli.

3. Why are the villi and microvilli important?

4. Where do nutrients go after the villi "soak" them up?

5. Name 4 different groups of cells in your body.

6. Why is it important that the small intestine have a lot of surface area?

GENERALIZATION

A variety of foods should be eaten every day. Foods can be grouped according to similar nutrient content.

TEACHER'S NOTES

Excellent, colorful resource:

"The Hassle-Free Guide to a Better Diet"

U.S.D.A.
Science and Education Admin.
Leaflet No. 567
1980

TITLE: "Five for Fitness"

Lesson #5-11

OBJECTIVES:

The student will:

- State that no single food can provide all the nutrients necessary for health.
- List the Five Food Groups and discuss why each is important.
- State how many servings s/he needs to eat from each food group on a daily basis.
- Give a daily diet example of how to get the recommended number of servings from a specific food group.
- Keep a record of his/her food consumption for several days and compare food intake to The Five Food Group guide.

MATERIALS:

- Handouts - "The Vegetable-Fruit Group" (#5-11A)
  "The Bread-Cereal Group" (#5-11B)
  "The Milk-Cheese Group" (#5-11C)
  "The Meat-Poultry-Fish-Beans Group" (#5-11D)
  "The Fats-Sweets Group" (#5-11E)
- Worksheet "Charting Your Daily Food Course" (#5-11)
- Handout - "The Mouth Meter" (#5-11F)
- UW-Extension publication - "Nutrients - Sources & Functions" (in Appendix section of this package)

ACTIVITY: (Next page)

ACTIVITY:

1. Begin by asking the class what a "balanced diet" means. How do we know if we're eating one?

2. State that generally speaking, a "balanced diet" means eating:
   - Some grains, especially whole grain foods
   - An assortment of fruits and vegetables
   - Some lean meats, poultry, fish and beans
   - Some milk, cheese and other dairy products
   - Not too much sugar, fat or fatty foods, or salted foods

3. Administer the following "quiz" (verbally) to the class: Ask, "Which foods do you think provide all the nutrients you need in one day?" (Write the following choices on the chalkboard.)

   A. 3 servings of spinach
   B. 3 glasses of milk, plus 2 chicken drumsticks
   C. 3 slices of bread, plus one fresh orange
   D. None of the above

   The correct answer is, of course, "D".

4. Emphasize to students that no single food can possibly provide all the nutrients their bodies need. State that even a couple of foods (such as examples B & C listed in the quiz) do not provide the balance they need.

5. State that eating for good nutrition is something like putting together a jigsaw puzzle - each basic food is a puzzle piece that has different things you need for a healthy body. All a person has to do is put the "different pieces" together to get the whole nutrition picture. What this really means is that everyone should eat a variety of foods.

6. Tell students that all the food we eat can be divided into 5 groups. We can call these groups "Five for Fitness". Mention that by knowing what foods are in each of the 5 groups, and by knowing how much of each group to eat, students can make sure they're getting a "balanced diet."

7. State that now students will take a closer look at the 5 Food Groups. Tell the class that they'll see what kinds of foods are in each and why it's important to eat those foods. Students will also learn how many servings they should eat from the different groups each day.

8. Pass out copies of the 5 handouts (one for each of the 5 Food Groups). Discuss each handout individually. Review nutrient functions as you go along, consulting the Extension publication ("Nutrients - Sources and Functions") for information.

9. Tell students that now that they know how to use the "Five for Fitness" food groups, they can check to see if they're eating right each day.

10. Distribute copies of the worksheet, "Charting Your Daily Food Course", and the handout, "The Mouth Meter". Explain to students that they are to keep track of everything they eat for 3 days. Everytime they eat something, whether it's mealtime or a snack, students are to record the food eaten and the amount eaten in the correct box on the worksheet chart. For example, a bowl of cereal at breakfast would be written under the "Breakfast" heading and in the box designated for Bread-Cereal Group. At the end of each day, students are to record the total number of servings from each of the 5 Food Groups and compare this total to "The Mouth Meter".

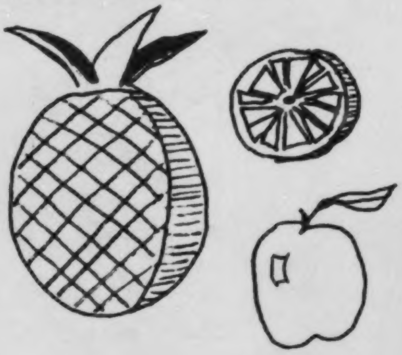
11. After students have completed charting their 3-day food intakes, discuss the results in class. Summarize by stating that it's the total day's intake that is important; each meal does not need to contain foods from all the food groups.

Handout #5-11A

FIVE FOR FITNESS

#1

VEGETABLE-FRUIT GROUP



*FOODS IN THIS GROUP: The vegetables include broccoli, spinach, carrots, green beans, sweet potatoes, green peppers, tomatoes, corn. See any favorites? The fruits include oranges, watermelons, bananas, strawberries, pineapple, canteloupe, cherries, grapes - just to name a few. Can you think of any others? Write these here ______________________________.

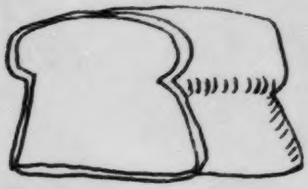
*WHAT'S IN IT FOR YOU? The vegetables and fruits give you vitamins A & C, carbohydrates and fiber (among other things). Dark green leafy things and yellow-orange vegetables (like winter squash and pumpkin) are good sources of vitamin A. Grapefruit, oranges, berries, and melons are super sources of vitamin C. So are tomatoes and broccoli! But different foods in this group provide different amounts of these vitamins and other nutrients. So - it's important to vary the ones you choose.

*HOW MUCH SHOULD YOU EAT? Four (4) servings of food from this group are recommended each day. Examples of one serving would be: an average-sized orange, a small glass of orange juice, or a small dish of sliced peaches. A medium-sized potato, a portion of green beans, or a small bowl of coleslaw (what vegetable is this made from ?) would also count as 1 serving.

*DAILY DIET EXAMPLE: To get your four servings is really easy. You might start the day with a small glass of orange juice, which counts as 1 serving. If you choose a salad at lunch, that would be another serving. And at dinner, you might have a portion of broccoli and a small baked potato to bring your total to 4 servings from the vegetable-fruit group.

FIVE FOR FITNESS

2



BREAD - CEREAL GROUP

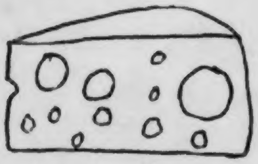
*FOODS IN THIS GROUP: All products made with whole grain or enriched flour, brown rice, bulgur, barley, cornmeal, etc. This means such foods as bread, muffins, pancakes, whole grain or ready-to-eat cereals, rice and enriched noodles and spaghetti.

*WHAT'S IN IT FOR YOU? This group gives you some of the B-vitamins and some iron. Whole grain breads and cereals also contain fiber and many important minerals (like magnesium, phosphorus, and zinc) which are present in low amounts in refined breads and cereals - - even the enriched ones!

*HOW MUCH SHOULD YOU EAT? Give yourself 4 servings from this group a day. Be extra sure to include whole grain breads or cereals.

*DAILY DIET EXAMPLE: If you begin your day with whole wheat toast (1 slice), your're getting 1 serving from this group. At lunch you may eat a hamburger and guess what? The top and bottom part of the bun count as 2 servings! A small plate of spaghetti or 1 roll at dinner will bring your total up to 4 servings from this group for the day.

FIVE FOR FITNESS



#3

Grade A
"MOO JUICE"
Milk
YOGURT

MILK - CHEESE GROUP

*FOODS IN THIS GROUP: Everything made from milk. You drink skim milk, lowfat milk, buttermilk, or whole milk. Also good are milk products such as cheese, yogurt, and cottage cheese.

*WHAT'S IN IT FOR YOU? This group provides the mineral calcium and several vitamins.

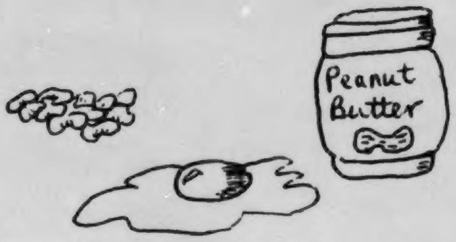
*HOW MUCH SHOULD YOU EAT? Since you're between the ages of 9 and 12, you should have at least 3 servings from this group each day!

*DAILY DIET EXAMPLE: You could start off your day with a glass of lowfat milk and some cereal. The glass of milk counts as one serving, and the milk you pour on your cereal can count as a half serving. For lunch, you could have a grilled cheese sandwich on whole wheat bread. The cheese counts as another serving. And to bring your grand total to 3 for the day, have 1/2 cup of yogurt with blueberries for dessert after dinner. (That yogurt counts as half a serving.)

Handout #5-11D

FIVE FOR FITNESS

#4



MEAT AND POULTRY
FISH AND BEANS
GROUP

*FOODS IN THIS GROUP: Chicken and fish are part of this group, as are other meats like beef, veal, lamb and pork. Other things you might not expect to find in this group are: eggs, dried beans (pinto-"burrito beans", kidney - "chili beans", etc.), nuts, lentils, dried peas.

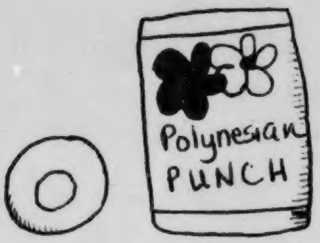
*WHAT'S IN IT FOR YOU? These foods provide protein, as well as iron and zinc, and many vitamins.

*HOW MUCH SHOULD YOU EAT? Two servings of 2-3 ounces of meat, fish or poultry are as much as you need of these foods each day. If you don't want to eat all meat, you can substitute 4 T. of peanut butter, 2 eggs, or 1-1½ cups of cooked beans instead.

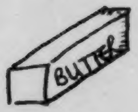
*DAILY DIET EXAMPLE: At lunch you might have a tuna salad sandwich. (The tuna would count as 1 serving). You could eat a medium-sized piece of baked chicken for supper as your second serving for the day. Pretty easy, huh?

Handout #5-11E

FIVE FOR FITNESS



#5



(#5 for FATNESS)

FATS - SWEETS
GROUP

*FOODS IN THIS GROUP: The sweets are: sugars, honey, candy, chocolate, soft drinks, fruit punches, syrups, jams and jellies, cookies, cakes and pies. The fats are: butter, margarine, mayonnaise, salad dressings, cream cheese, fried snack foods (like french fries and potato chips).

*WHAT'S IN IT FOR YOU? Frankly, not much - except calories! It's a better idea, though, to get most of your daily calories from the other 4 food groups. You'll not only be getting the calories, but the nutrients as well!

*DAILY DIET EXAMPLE: You will get enough fats and sugars if you eat a balanced diet from the other food groups. Besides, you probably eat some butter or margarine on your bread and dressing on your salads. Nutritionists do not recommend a certain number of servings from this group per day, so no daily diet example is given for you.

CHARTING YOUR DAILY FOOD COURSE

DIRECTIONS: Here's your big chance!!! Keep track of everything you put in your mouth (to eat, that is - - feet don't count!) for 3 whole days (you may need to trace this chart onto 2 blank pieces of paper for Day 2 & Day 3). Remember - everytime you eat or drink something, whether it's during mealtime or for a snack, write the food eaten and the amount eaten (you can estimate) in the correct box on the chart below.

EXAMPLE: For breakfast you might eat a bowl of cornflakes with 1 teaspoon of sugar and 1/2 cup of lowfat milk. You would write all these foods under the BREAKFAST column and in the correct food group boxes (Write "bowl of cornflakes" in the Bread-Cereal Group square, "1 teaspoon of sugar" in the Fats-Sweet Square, and the "1/2 cup lowfat milk" in the Milk-Cheese Group square. Again, all of these should be written under the "Breakfast" column.)

"FIVE for FITNESS"	BREAKFAST	LUNCH	DINNER	SNACKS
#1 VEGETABLE - FRUIT GROUP				
#2 BREAD-CEREAL GROUP				
#3 MILK-CHEESE GROUP				
#4 MEAT POULTRY and FISH BEANS GROUP				
#5 FATS-SWEETS GROUP				
TOTAL no. of servings from each group				

** Remember to check your eating pattern with the "Mouth Meter". How did you do?

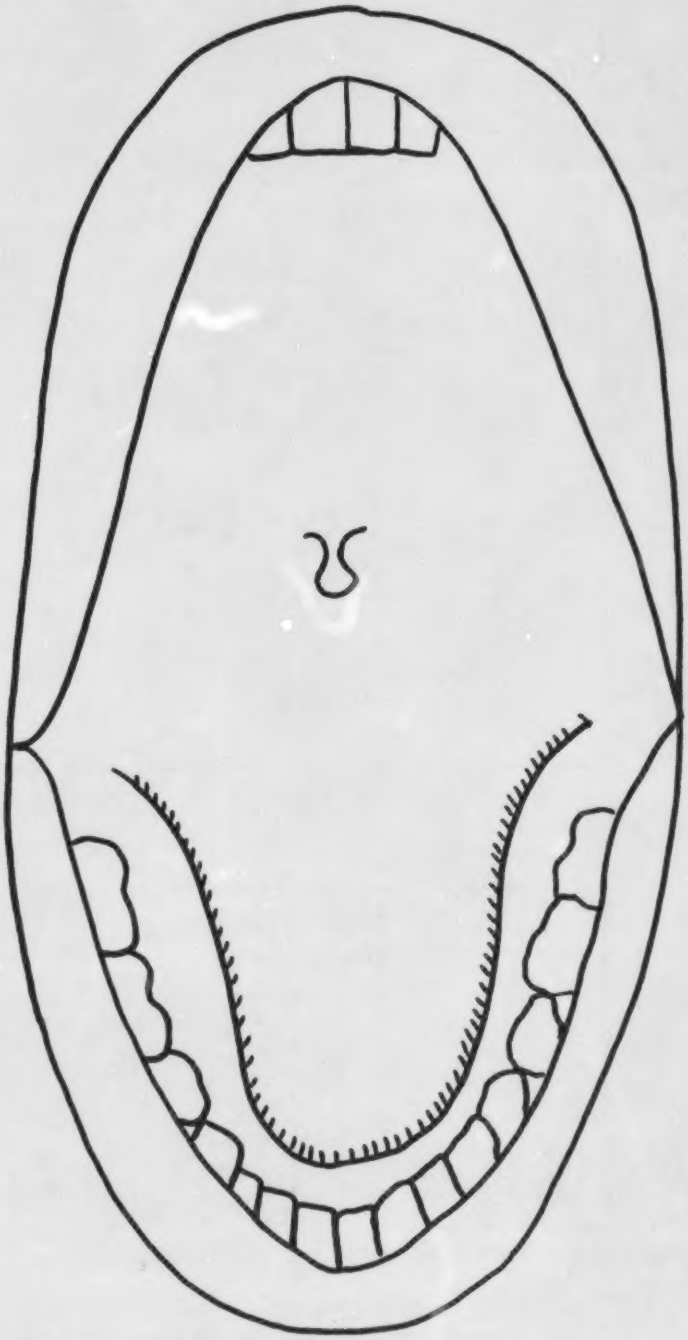
Handout #5-11F

THE MOUTH METER

Take a close up look at what went into your mouth - Does it measure up to what you need each day? Find out below:

What You Ate: (Check the number of servings you ate)	Recommended No. of Servings from each group:	
	1	VEGETABLE - FRUIT
	2	
	3	
	4	
	▨	
	1	BREAD-CEREAL
	2	
	3	
	4	
	▨	
	1	MILK-CHEESE
	2	
	3	
	▨	
	1	MEAT FISH & POULTRY BEANS
	2	

	My Total:	Recommended Total:
TOTAL:	____	13



*(Remember - There are no recommended number of servings from the Fats-Sweets Group. Go easy on these, Please!)

GENERALIZATION

Certain nutrients can be lost by cooking. There are accepted cooking methods which minimize nutrient loss from foods.

TEACHER'S NOTES

This lesson could reasonably follow one on vitamins - sources and functions.

TITLE: "Save the Vitamins!" Lesson #5-12

OBJECTIVES:

The student will:

- State that water soluble vitamins (the B-vitamins & vitamin C) are less stable than fat soluble ones (vitamins A, D, E, & K).
- State that unstable nutrients are more easily destroyed by cooking and may also be lost if stored for long lengths of time.
- Explain that vitamins can be lost when a vegetable is cooked in an excess amount of cooking water.
- Identify 2 ways of food preparation which maximize vitamin retention.

MATERIALS:

For Stir - Frying
- Electric fry pan or electric wok
- 3 different types of vegetables, enough for everyone to taste (Suggested are: carrot coins, green pepper strips, and broccoli flowerets (sliced thinly).
- 3-5 T. of cooking oil
- (Opt.) Soy sauce
- Wooden spoon or spatula

For Steaming
- 2-Qt. saucepan with lid.
- Collapsable steamer
- 1 vegetable, sliced (zucchini is good)

- Plastic spoons, paper plates

nt'd)...

MATERIALS (Cont'd.)...

For Experiment

- 2 - 2 Qt. saucepans with lids
- Chopped broccoli (2 fresh, medium stalks)
- Hot plate (or stove top range)
- 3 glass jars
- Worksheet - "Save the Vitamins" (#5-12)

ACTIVITY:

1. Begin by asking students to name as many vitamins as they can. Record these on the blackboard.

2. Ask the class to name the 2 categories or classes of vitamins (water-soluble and fat-soluble). Explain that the water-soluble vitamins "dissolve" in water easily - the fat-soluble ones do not.

3. Write 2 category headings on the blackboard - "Water-Soluble" and "Fat-Soluble": Instruct the class to correctly classify the vitamins they named earlier into one of these 2 categories. (Note: The water-soluble vitamins include vitamin C, thiamine, niacin, riboflavin, folacin, vitamin B_{12}, vitamin B_6. The fat-soluble vitamins include vitamins A, D, E and K.)

4. Mention that the water-soluble vitamins are less stable during the cooking process than fat-soluble vitamins. This means that the water-soluble vitamins are more easily destroyed, or lost, by cooking - expecially at high heats and if a large amount of cooking water is used. The greatest loss of water-soluble vitamins occurs in cooking because these vitamins "leach" (or "pass out" of the food - especially vegetables) into cooking water. As a result, the water in which vegetables are cooked will contain those nutrients the vegetables have lost. (This water shouldn't be thrown away! It can be used in sauces, soups, casseroles or breads to avoid losing valuable nutrients!)

5. Demonstrate the experiment on the worksheet, "Save the Vitamins!" You may want to ask 1 or 2 students to assist you in the experiment. Have students answer the questions on the worksheet after the experiment is performed. (Note: Broccoli is a good vegetable to use for the experiment, as it is a good source of vitamin C, vitamin A, and folacin.)

6. Explain that 2 of the most effective ways of retaining nutrients in vegetables are stir-frying over high heat and steaming. Both cooking methods are done for only a brief period of time to minimize vitamin destruction and loss.

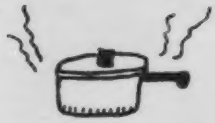
7. Discuss the oriental method of "stir-frying" vegetables. This rapid cooking over high heat provides full flavor as well as retention of vitamins and color. Demonstrate this method by using 3 different vegetables (see Materials section) and an electric fry pan or wok. Follow this procedure:

   A. Heat oil in electric skillet or wok.

   B. Add the 3 chopped vegetables and stir them briefly in the oil until they are "crispy - crunchy".

   C. Serve the vegetables in small portions. Pass soy sauce, if desired.

8. Discuss steaming vegetables. This is another cooking method which does not allow nutrients to leach out of food. Demonstrate this method by placing a small amount of water (2 inches deep) in the bottom of a saucepan. Heat and cover. When steam is produced, place the vegetable to be sampled in the "basket" of the collapsable steamer and place in pan. Steam until the vegetable is "crispy-crunchy". Allow students to sample the final product. Ask students which they like better, crunchy cooked vegetables or mushy ones? Which type contains more vitamins for health? (crunchy or mushy)?



Worksheet #5-12

SAVE THE VITAMINS - EXPERIMENT

Name of the VEGETABLE used in this experiment: ______________________

OBSERVE THE FOLLOWING EXPERIMENT:

1. Fill one saucepan 1/2 - full with water. Add 1 cup of the fresh, chopped vegetable. Cover and set on hot plate or range. Boil for 15 minutes.
2. Place 1 cup of the remaining fresh, chopped vegetable in the other saucepan. Add only enough water to barely cover the vegetable. Put the lid on the pan and set on hot plate or range. Boil 5 minutes.
3. Strain off the water from each pan and pour into separate glass jars. Compare the cooking water from each pan to each other and to a glass jar containing plain water.

ANSWER THE FOLLOWING QUESTIONS:

1. What vitamins does the vegetable in the experiment contain?

   ____

2. Which of the vitamins listed in your answer to #1 are water-soluble?

   ______________________ Which are fat soluble? __________

   ____

3. Which of the vitamins listed in your answer to #1 are "leached" (soaked) out into the cooking water? ______________________

   ____

4. Describe the color of the cooking water from each of the saucepans in the experiment:

   A) Color when boiled in a lot of water: ____________________

   B) Color when boiled in a small amount of water: ______________

5. Which cooking method resulted in the most vitamin loss? __________

   ____

GENERALIZATION

Eating "low" on the food chain can be healthy and energy-efficient

TEACHER'S NOTES

Peanuts are really legumes but are eaten like nuts.

TITLE: "Eating Low on the Food Chain"

Lesson #5-13

OBJECTIVES:

The student will:

- List 2 reasons for eating "low" on the food chain.
- Define a "vegetarian".
- Give 2 examples of both plant protein sources and animal protein sources.
- Explain that different plant proteins should be combined with each other (or with dairy products) to make high quality proteins that the body can use.
- Prepare a high quality, high protein snack from plant proteins.

MATERIALS:

- Worksheet - "Plant and Animal Proteins" (#5-13)
- An assortment of the following:

Dry Legumes	Nuts	Seeds	Dry Grains
Kidney beans	Cashews	Sunflower	Brown rice
Pinto beans	Walnuts	Pumpkin	Barley
Split peas	Almonds	Sesame	Bulgur
Lentils	Pecans		Cornmeal
Soybeans			Rolled Oats
Peanuts			

*Note: Try to provide a small amount of at least two foods from each of the 4 categories above as a visual aid for your students.

- Small clear plastic bags & ties, masking tape, index cards (3"X5")
- Recipe - "SUN-NUTS" (#5-13)
- (Opt.) - Guest speaker: a practicing vegetarian

ACTIVITY

1. Begin by stating that there are 2 basic sources of protein: animal and plant. Animal sources include meat, fish, poultry, eggs, milk and cheese. Plant protein sources include such foods as legumes, grains, seeds and nuts. (Inform the class that they will learn more about plant proteins later in the lesson).

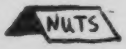
2. Review the concept of the food chain. Explain that some nutrition scientists think that Americans, in general, eat too many animal products. They give reasons why people should cut back on their consumption of animal products (especially meats) and eat "lower" on the food chain (e.g. eat more plant foods).

   - Eating less meat helps conserve energy. It takes about 4 times as much energy (in terms of fossil fuels) to grow, process, transport and market animal products than plant foods.
   - In order to raise meat(beef cattle, hogs, etc.) an enormous amount of grain has to be used to feed and fatten the animals for market. This grain could be used instead to feed hungry people in this country and in the rest of the world.
   - Animal products (except for skim milk) are generally high in fat and cholesterol. Diets high in these substances may lead to heart diseases such as heart attacks and stroke. Ask students if they know anyone who is on a low cholesterol diet (i.e. individual eats few eggs, liver, etc.)?

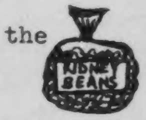
3. State that there are some people who do not eat any animal foods at all. That includes all meat, fish, and poultry. These individuals are called "vegetarians" (write this term on the chalkboard). Mention that some vegetarians will drink milk and eat cheese and eggs, since these foods are not the actual meat of animals. Others choose not to eat foods that come from any animal source at all!

4. (Optional) Invite a practicing vegetarian (perhaps a Seventh Day Adventist) to visit your class for this lesson. Questions students could ask this person include:

   - Why are you a vegetarian?
   - What foods don't you eat?
   - What foods do you eat?
   - Is a vegetarian diet healthy?

5. Make a display of the legumes, seeds, nuts and grains you have collected. (Label each category with "table tents" made from index cards: )

   The actual legumes, seeds, nuts and grains could be in small, clear plastic bags with a strip of masking tape with the name of the food taped on the bag itself for easy identification.

   Note: This step can be done ahead of time! Refer to the display as you proceed through the next few steps of the lesson.

6. Tell students that they will now get a closer look at some plant protein foods - specifically legumes, seeds, nuts and grains.

7. Discuss legumes first. State that legumes are dried beans, peas and lentils. Examples of these include: pinto beans, kidney beans, navy beans (has anyone ever eaten ham and bean soup?), garbanzo beans, split peas, and lentils. Legumes can be used in making soups, casseroles, cold salads and sandwich spreads. Soybeans are a very useful and versatile legume. They are used to make soy flour, soy cheese (called "Tofu"), and soy ice cream called ice bean! Soybeans are also used to make foods that look and taste like meat. Ask the class what legume(s) they like to eat? (Examples might include chili, split pea soup, burritos, etc.)

8. State that nuts are the dry fruit of some plants

8. (Cont'd.)...

(usually trees). Some examples are: cashews, walnuts, peanuts, almonds, pecans, pistachio nuts, etc. Because nuts are high in fat, they should be eaten in moderation. What kinds of nuts do students like?

9. State that pumpkin seeds, sesame seeds and sunflower seeds are dried seeds that are edible. How many students have dried and roasted the seeds of a carved pumpkin at Halloween time?

10. Discuss grains as flour and cereals made from wheat, oats, and rice; rice itself, cornmeal, bulgur and barley.

11. State that legumes, nuts, seeds and grains are good sources of vitamins, minerals and fiber, as well as protein.

12. Explain that the best way to eat plant proteins is to combine certain types together or eat them together with dairy products (like milk and cheese) to make high quality protein combinations. (High quality proteins have all the "materials" the body needs to build and repair tissues like muscle, skin, hair, nails, etc.)

13. Distribute copies of the worksheet, "Plant and Animal Proteins". Allow approximately 15 minutes for students to complete the sheet. Review the correct answers in class:

#1 - plant, animal; #2 - legumes, seeds, nuts, seeds;

#3 - #6 (see lesson elsewhere); #7 - Tofu; #8 - soybeans;

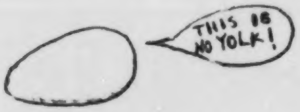
#9 - milk, cheese; #10 - vitamins, minerals, fiber;

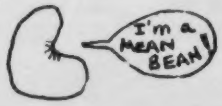
#11 - vegetarian.

14. Have the class prepare the high quality, high protein snack, "SUN-NUTS".

Plant and Animal Proteins

THE ALMOND BROTHERS


THIS IS NO YOLK!


I'm a MEAN BEAN!

COMPLETE THE FOLLOWING SENTENCES:

1. Eating "lower" on the food chain means eating more ____________ proteins, and less ____________ products.
2. The four best sources of plant proteins are ______________, ______________, ______________, __________________.
3. An example of a legume is: ____________________________________.
4. An example of a nut is: ____________________________________.
5. An example of a seed is: ____________________________________.
6. An example of a grain is: ____________________________________.
7. Soy cheese is called: ____________________________________.
8. These legumes are used to make foods that look and taste like meat: ____.
9. To get a high quality protein, you can combine plant proteins with each other or animal products such as: ___________________ and __________________.
10. Legumes, nuts and seeds are high in ___________________, ______________, and ___________________.
11. A person who does not eat meat is called a ___________________________.

EQUIPMENT/SUPPLIES:

2 medium-sized bowls

Spoon

Small paper soufflé cups
(1 per student)

NAME OF RECIPE: "SUN-NUTS"

INGREDIENTS:

2 c. raw or toasted sunflower seeds

2 c. roasted peanuts

PROCEDURE:

1. Combine sunflower seeds and peanuts.
2. Each student can spoon 1/4 cup into his/her soufflé cup.
3. Eat! (While eating, discuss the fact that peanuts are legumes, and tell students that by eating the sunflower seeds and peanuts together, they are getting a good source of protein.)

Yield: 16 - 1/4 c. servings

GRADE 6

Grade 6

NUMBER	LESSON TITLES	GENERALIZATIONS	HEALTH CONTENT AREA
6-1	"On the Food Campaign Trail"	Food purchasing and eating behavior may be influenced by food advertising. Food companies use a variety of techniques to advertise their products to encourage people to buy them.	Mental Health (Psychological/ Emotional Aspects of Nutrition)
6-2	"Rank that Snack!"	Snacks high in nutrients in relation to calories (i.e. high nutrient density) contribute to a person's daily nutrition.	Physical Health
6-3	"Set a Trend When You Vend"	Nutritious snacks can be selected from some vending machines. People can influence food choices offered by vending machines by expressing preferences.	Physical Health
6-4	"Too Much of a Good Thing?"	Vitamins taken in large doses above the recommended levels may serve non-vitamin chemical functions in the body, many of which have been shown to be harmful.	Mental Health (Drugs and Nutrition)
6-5	"To Take or Not To Take - That is the Vitamin Pill Question"	Vitamin/Mineral supplements are unnecessary if a well-balanced diet is chosen.	Mental Health (Drugs & Nutrition)
6-6	"Love Your Liver - Say 'Boo' to Booze!"	Excessive alcohol consumption can be harmful to health and can increase the body's requirements for certain nutrients.	Mental Health (Drugs and Nutrition)
6-7	"Fast Facts about Fast Foods"	The nutritional value of fast foods depends on wise selection by the consumer.	Physical Health
6-8	"It's All a Matter of Balance"	The amount of energy a person takes into his/ her body should match the amount of energy s/he expends.	Physical Health

Grade 6 (cont'd.)...

NUMBER	LESSON TITLES	GENERALIZATIONS	HEALTH CONTENT AREA
6-9	"Be a Label Detective"	All fortified foods and all foods for which a nutritional claim is made must display nutrition information on the labels.	Safety & Consumer Health
6-10	"Supermarket Scavenger Hunt"	Nutrition labels can be used in many ways.	Safety and Consumer Health
6-11	"Halt the Salt!"	Excessive salt (sodium) consumption can be harmful to health.	Physical Health
6-12	"Fossil Fuels and Food"	Energy can be saved by bypassing some of the steps in the food production and distribution system.	Community and Environmental Health
6-13	"Cupid Cookery"	When consuming a vegetarian diet, care must be taken to correctly match, or complement, proteins in foods eaten to maximize the efficiency with which the protein is used by the body.	Community and Environmental Health
6-14	"A Hungry World"	Food is not evenly distributed among the world's people, resulting in malnutrition in many regions of the world. There are steps people can take to learn more about hunger in the world.	Community and Environmental Health
6-15	"Food and Fitness"	Nutrition and exercise are both important for overall fitness.	Health Promotion
*	"What is Your Nutri-Score?"	This is an eating habits self-check designed for 6th graders.	Health Promotion

GENERALIZATION

Food purchasing and eating behavior may be influenced by food advertising. Food companies use a variety of techniques to advertise their products to encourage people to buy them.

TEACHER'S NOTES

TITLE: "On the Food Campaign Trail"

OBJECTIVES:

The student will:

- Identify 4 advertising techniques which influence food choices
- Plan and conduct an advertising campaign of an unfamiliar, unusual food.

MATERIALS:

*Note: This lesson is divided into 2 parts

Part I:

- Handout - "On the Food Campaign Trail" (#6-1)
- Worksheet - "Pick Up On The Sales Pitch"(#6-1)

Part II:

- Paper and pencils
- *Unfamiliar fruit or vegetable
- Art supplies (as needed) for advertising campaign: poster board, construction paper, glue, felt-tipped pens, paints, etc.

*See Activity for specific suggestions (Part II).

ACTIVITIES (PART I AND PART II) (see next page)

ACTIVITY - PART I (2 Days):

1. Distribute copies of the handout, "On the Food Campaign Trail". Review the information on the sheet and ask students to think of example of foods that "fit" the types of advertising mentioned in the handout.

2. Pass out worksheet entitled, "Pick up on the Sales Pitch". Explain to students that they are to visit a local grocery store and identify 10 food products promoted there by the manufacturer. Remind them to take their worksheets and a pencil with them to the store. Allow approximately 1 week for the completion of this activity.

3. Once the required information is compiled, have students discuss their findings with the rest of the class. End the discussion by asking students if they think advertising techniques would (or do) influence whether or not they buy a food product? What techniques do students deem most effective?

ACTIVITY - PART II

1. Plan and conduct an advertising campaign of an unfamiliar food. (You will need permission of your principal and school lunch personnel). In order for students to determine if an advertising campaign is successful, they will need to conduct a pre- and post- survey. (The survey population can be the entire school or simply another classroom.) Have your class select an unfamiliar fruit or vegetable to be advertised. *Some ideas are: Mango, papaya, casaba, kiwi fruit (all fruits); bok-choy, jicama (vegetables). (Note: Mango, papaya and casaba are all excellent sources of vitamin C.).

2. Have students devise a simple survey questionnaire (to be used as both the pre- and post- advertising survey). Some questions to include might be: A) Do you know what this food is? (Students should exhibit the raw food being advertised); B) Have you ever tasted it?; and C) What nutrients does it contain?

3. Instruct students to set up a booth outside the cafeteria. Each student who mans the booth should have a printed copy of the questionnaire and a pencil to record the number of similar responses for each survey question ("Yes" or "No" answers are easiest to record.) Tally the results after the lunch hour.

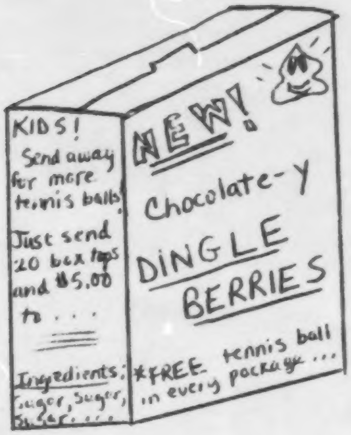
4. The next stage of this activity involves promoting and advertising the food. To accomplish this students should use posters, bulletin board displays, flyers, skits, speeches, etc. Remind the class to stress the food's nutritional aspects! "Sell" the new food with as much fanfare as possible!

5. Ask the school food service personnel to serve the new food at lunch, coordinating it with the lunchroom menu. (For example, mangoes, papaya and kiwi fruit could each be served sliced as part of a fruit cup.).

6. When the campaign is completed (allow 1 week for this), have students take the survey again in a manner similar to the "pre-test". How do the results compare?

Handout #6-1

ON THE FOOD CAMPAIGN TRAIL


KIDS!
Send away for more tennis balls.
Just send 20 box tops and $5.00 to . . .
Ingredients: Sugar, Sugar, Sugar, . . .
NEW!
Chocolate-y
DINGLE BERRIES
*FREE tennis ball in every package . . .

Advertising affects our food choices by getting us to buy a food product. Food companies use several methods to encourage us to "Stop, Look and Listen!" to their sales pitches. Some of the methods used are:

I. Sales Promotion Gimmicks

Free toys or prizes inside package.

Coupons for beach towels, cereal bowls and mugs, toys, etc. on package label.

Money saving coupons on new foods to get you to try them or to boost sales.

Buy one, get one free.

II. Advertising Tactics (T.V., radio)

Catchy, happy songs or "jingles" (i.e. McDonald's)

Testimonials on how "good" it is from national heros, sport personalities, movie or TV characters, or "cute kids" (i.e. Bill Cosby for Jello Pudding, Bruce Jenner for Wheaties, etc.)

Band wagon, that is, "Everybody's doing it!" (i.e. "Be a Pepper, Drink Dr. Pepper").

It will make you glamorous, appealing, etc. (i.e. diet sodas).

III. Packaging

Convenience-sized, easy to open and throw away.

Flashy, colorful, or eye-catching.

Remember: Being aware of advertising techniques enables you to make wise food choices!!

"PICK UP ON THE SALES PITCH"

INSTRUCTIONS: Go to a grocery store and locate 10 foods promoted there by the store or by the manufacturer. Take this sheet with you and complete the following information while at the store:

NAME OF FOOD PRODUCT:	GIMMICK USED:	ADVERTISING TACTIC:	TYPE OF PACKAGING:
(Example) 1. "Chocolate Dingle - Berries"	Free tennis ball inside	T.V. - A cute kid says, "How yummy for your tummy it is."	Cardboard box - Big picture of yellow tennis ball on the front.
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

GENERALIZATION

Snacks high in nutrients in relation to calories (i.e. high nutrient density) contribute to a person's daily nutrition.

TEACHER'S NOTES

The following lists may help you in terms of label, wrapper, carton, etc. collection:

Nutritious Snacks:

- milk cartons (not chocolate)
- boxes of dried fruit
- bags of peanuts, cashews, other nuts
- yogurt cartons
- cheese wrappers
- peanut butter labels
- labels from boxes of whole-grain crackers
- pictures of fresh fruits and vegetables
- labels from fruit juice cans, frozen concentrate

Non-Nutritious Snacks:

- Soda cans
- Candy bar/gum wrappers
- Other candy wrappers
- bags of potato chips, corn chips, tortilla chips, cheetos, etc.
- bags or labels from cookies (chocolate sandwich type, etc.)
- labels from cans/jars of fruit punch, fruit drinks and instant beverage mixes.

TITLE: "Rank that Snack!"

OBJECTIVES:

The student will:

- recognize certain health problems that are linked to overconsumption of foods high in sugar, fat and salt (sodium).
- rank popular snack foods according to their nutritive value, sugar, salt and fat content.

MATERIALS:

- labels, empty cartons or boxes, wrappers from (and/or magazine pictures of) a variety of foods, (strive for an equal amount of nutritious and non-nutritious foods), commonly eaten for snacks. (Note: You may want to inform other teachers of this project and ask for their help in collecting labels, etc. prior to the activity.)
- worksheet - "Rank that Snack!" (#6-2)
- handout - "Important Sources of Nutrients" (#6-2)

ACTIVITY:

1. Begin by stating that overconsumption of foods high in sugar, fat and salt (sodium) are linked to a variety of serious health problems. Too often these poor foods are selected as snacks in place of more nutritious ones.

2. Remind students that what they eat affects every part of them; the proper functioning of their skin, eyes, brain, heart, blood and stomach is dependent on the quality of their diet.

3. State that certain substances in food can be harmful to our health when eaten in large amounts. Too much sugar, fat and salt can lead to serious health problems. Mention to the class that the harmful effects of a poor diet are not always seen immediately. It can take years before there is a noticeable breakdown in body functions.

4. State that too much sugar in the diet can lead to tooth decay. Tooth decay is caused by bacteria that live in everyone's mouth. These tiny organisms feed off of sugar you eat and produce acid that "eats away" at the tooth enamel.

5. Continue by saying that diets high in fat add lots of extra calories to a person's diet which could possibly lead to obesity, heart disease and some forms of cancer.

6. Finally, state that too much salt in a person's diet can increase the risk of developing high blood pressure.

7. It is important to mention to your class that today, many foods are fortified with vitamins and minerals. Explain to students that "fortification" means that nutrients not normally present in foods have been artificially added. Sugar-coated breakfast cereals, sugared breakfast drinks (e.g. Tang) and even some candy (Nestle's "Go-Ahead" chocolate bar) are good examples of poor foods that have been fortified. Remind students that they should not judge foods only by the quantity of nutrients they contain. They should also look at the amount of sugar, fat, and salt in the particular food. Conclude that the most nutritious snacks are both high in nutrients and low in sugar, fat and salt.

8. Distribute the labels, empty wrappers, cartons or boxes that you have collected (and any magazine pictures you have cut-out) so that each student is given one label (or wrapper or carton or picture). *Strive for an equal distribution of healthy and unhealthy snack foods among the class.

9. Pass out copies of the worksheet entitled, "Rank that Snack!" and the handout "Important Sources of Nutrients".

10. Instruct students to write the name of their particular snack (as it appears on the label or, if it is a fruit or vegetable, its name) at the top of the worksheet. They are to examine the ingredient list on the label (if applicable) and record all ingredients (in the order listed) in the appropriate space provided on the worksheet. Students are then to "score" their snacks using the procedure state on the worksheet. (This could be done in class or as a homework assignment to be discussed the next day.)

11. After everyone has assigned a "score" to his/her snack, proceed around the classroom and have each student: a) give the name of the snack s/he has evaluated, b) make some brief comments as to the sugar, fat, salt and nutrient content of the snack, and c) finally, state its "score". To facilitate comparison between snack items, write the name of each snack and its "score" on the blackboard as you go around the room.

12. After this sharing session is completed, rank the snacks (the highest scores will represent the most nutritious snacks - higher in nutrients and lowest in sugar, fat and salt content). NOTE: This list can be typed-up and sent home to parents for their information.

Worksheet #6-2

RANK THAT SNACK!

NAME OF SNACK: ______________________________

LIST OF INGREDIENTS: ______________________________

____

____

SCORE COLUMN

If sugar (or honey, brown sugar, molasses, dextrose sucrose, corn syrup, invert sugar, or fructose - all "alias names" for sugar) is listed first, second, or third in the ingredient list above, write $\boxed{-10}$ points in the score column: ________

If fat (any kind of oil, lard, beef fat, hydrogenated fat, or a combination of these) is listed first, second or third in the ingredient list, write $\boxed{-10}$ points in the score column: ________

If salt is listed anywhere in the ingredient list, write $\boxed{-10}$ points in the score column: ________

If this snack is made from whole grains (such as whole wheat flour, etc.) write $\boxed{+10}$ points in the score column: ________

If this snack is a fresh fruit or vegetable, write $\boxed{+10}$ points in the score column: ________

If this snack is a naturally good source of one or more of the following nutrients - protein, calcium, iron, vitamin A, vitamin C - write $\boxed{+5}$ points for each nutrient this snack provides in the score column (Foods fortified with vitamins and minerals don't count): ________

*List the nutrients this snack contains:

Add up your points.

Total Score = ☐ points

Handout #6-2

IMPORTANT SOURCES OF NUTRIENTS

NUTRIENT	NATURAL SOURCES
PROTEIN	Milk Yogurt Nuts Peanut Butter Cheese Meat, fish, poultry Refried Beans (& other dried beans) Seeds (such as sunflower, pumpkin)
CALCIUM	Milk Cheese Yogurt Dark green vegetables (broccoli)
IRON	Dried Fruit (raisins, dates apricots) Meat Refried Beans
VITAMIN A	Dried apricots, peaches Carrots Broccoli (& other dark green vegetables) Canteloupe Apricot Nectar Tomato/Tomato Juice
VITAMIN C	Orange Grapefruit Strawberries Canteloupe Watermelon Orange Juice Grapefruit Juice Green Pepper Tomato/Tomato Juice Broccoli

GENERALIZATION

Nutritious snacks can be selected from (some) vending machines. People can influence food choices offered by vending machines by expressing preferences.

TEACHER'S NOTES

Lesson #6-3

TITLE: "Set a Trend When You Vend"

OBJECTIVES:

The student will:

- Recognize nutritious snack selections offered in vending machines.
- Attempt to influence vending machine selections of other people.

MATERIALS:

- Worksheet: "Vending Machine Survey" (#6-3)
- UW-Extension publication "Nutrients-Sources and Functions" (See Appendix)
- "Quick Foods" - pamphlet produced and distributed through the Wisconsin N.E.T. Program. (See Appendix)

ACTIVITY:

1. Begin by asking your class if anyone has ever used a vending machine. What kinds of food/beverages are offered in vending machines? (Write student responses on the blackboard). Have your students name some locations where vending machines are found. (Again, record responses on the blackboard).

2. Ask your students how they judge whether or not a vending machine (or any) snack is "nutritious".

Mention that one way is to see how many and what kinds of nutrients one is getting for the number of calories in a food. (This is termed: nutrient density). For example: An orange contains about 60 calories and 110% of the recommended daily allowance for vitamin C, plus smaller amounts of other vitamins and minerals. In contrast, milk chocolate (one ounce or 1 square) contains

2. (cont'd.)...

150 calories and is not an outstanding source of any nutrient. Therefore, the better snack choice is the fresh orange!

3. State that sticky, sweet foods such as candy and colas are prime foods for bacteria which cause tooth decay. In choosing snacks which are not high in sugar, people can help prevent cavities at a time when they may not be able to brush their teeth.

4. Hand out copies of the NET pamphlet "Quick Foods" (in Appendix). Turn to the second page, headed "Simple Snacks". Tell your class that the foods listed on the first 1/2 of this page are nutritious snacks-many of which can be found in certain vending machines. Go through each of the snacks listed and have your students name the nutrient contribution of each:

Snack:	Nutrient Contribution:
*Nuts and seeds	Protein, niacin
*Raisins & other dried fruits	Iron (Vit. A-dried apricots)
*Whole grain crackers	(Fiber) B-vitamins
*Cheese	Protein, calcium, riboflavin
*Peanut Butter	Protein, niacin
Hard cooked eggs	Protein, iron
*Fresh Fruit	Vitamins A & C (fiber)
Fresh Vegetables	" " "
*Yogurt	Protein, calcium, riboflavin

*These foods are available in some vending machines.

(Note: To review nutrient functions, consult University of Wisconsin-Extension publication "Nutrients - Sources and Functions")

5. Turn to the last page of "Quick Foods" and read item #4 ("When choosing something to drink..-"). Ask your class if anyone has ever compared orange drink to orange juice (or grape drink to grape juice)? What are the taste differences? What are the nutritional differences? (Fruit drinks are mostly sugar and water; fruit juices contain vitamins and minerals and contain no added sugar).

6. Inform the class that they are going to do a survey of snack selections from various vending machines around your community. (This assignment can be executed in groups of 4-5 students).

Procedure:
A) Each group of students is to select a snack vending machine located somewhere in your community (No two groups should survey the same vending machine).
B) Distribute copies of the worksheet entitled, "Vending Machine Survey".
C) Each group of students is to visit their selected vending machine and record what snack items are offered by the machine. They are then to rank the snacks in descending order of nutritional value (i.e. the most nutritious snack item is ranked #1, etc.) using the criteria discussed earlier. This information should be recorded on their worksheets.
D) In order to assess which snack items are frequently selected from the vending machines, students should post a "letter" on their particular machine (along with a pen or pencil attached by a string) reading as follows:

(See next page).

6.D) (cont'd.) . . .

> Dear Snacker:
>
> We are 6th grade students doing a survey on vending machine snack choices. After you purchase something from this machine, would you please write the name of the item you selected on this sheet? Thank you!
>
> Your selection was: ____________________
>
> ____________________
>
> ____________________
>
> ____________________
>
> etc.

This sheet should be retrieved by one (or more) members of the groups one week after posting.
**NOTE: The vendor should be consulted or the sheet will most likely be removed when the machine is filled!

E) As a group, students will create a small poster or flyer that states which snack food items offered by "their" vending machine are most nutritious based on the students' estimate of each snack food item's nutrient density (as discussed earlier).
Note: Students should not be expected to calculate a numerical value representing a snack's nutrient density "score". They are simply to recognize how many and what nutrients they are getting for the number of calories in the food.
Students may want to use tables of food composition to aid them in determining the relative nutritional values of various snack food items. These posters/flyers should be colorful and attractive in order to capture the attention of people who use the machines.

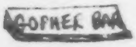
F) Students should post their "Nutritious Snacks" posters or flyers on "their" vending machines when they go to collect the first survey letter. These posters/flyers should be co-posted with a second survey letter reading exactly as the first one.

G) Again, after 1 week has lapsed, students should retrieve their survey letters and compare the results with those from the first survey. Have snack choices been altered as a result of information given on the poster/flyer each group designed? Discuss the results in class.

H) Summarize by stating that the more frequently nutritious snack food items are selected from vending machines, the greater the selection of nutritious foods often becomes. People can influence what food choices are offered by expressing nutritious preferences!

VENDING MACHINE SURVEY

TACO
CHOMPS



1. LOCATION OF VENDING MACHINE ______________________________.

2. NAME EACH FOOD ITEM OFFERED BY THIS VENDING MACHINE (INCLUDING BRAND NAME):

____

____

____

____

____

____

____

____

____

____

____

3. RANK THESE FOOD ITEMS (LISTED IN #2) IN DESCENDING ORDER OF NUTRITIONAL VALUE:

1. ______________________________ (MOST NUTRITIOUS)
2. ______________________________
3. ______________________________
4. ______________________________
5. ______________________________
6. ______________________________
7. ______________________________
8. ______________________________
9. ______________________________
10. ______________________________

(ETC.) - (LEAST NUTRITIOUS)

GENERALIZATION

Vitamins taken in very large doses above the recommended level may serve non-vitamin chemical functions in the body, many of which have been shown to be harmful.

TEACHER'S NOTES

This activity is of a dual nature:

PART A includes discussing reasons behind the improper use of vitamin supplements, as well as evaluating some of the possible toxic (harmful) effects that could potentially result from ingesting large doses of vitamins.

PART B is designed to be an information-sharing session whereby students individually present information gleaned from labels of vitamin supplements which they have examined at a local health food or drug store.

*It is suggested that you allow approximately one (1) week between Parts A & B to allow students adequate time to carry out their assignment.

Resource: "Nutrients and Their Functions"

Univ. of Wisconsin - Extension Publication

TITLE: "Too Much of a Good Thing?"

OBJECTIVES:

The student will:

- state various reasons why people might take extra-large doses of particular vitamins.
- list possible toxic effects resulting from taking large doses of fat-soluble vitamins (A, D, E, & K).
- explain what happens when large doses of the B-vitamins and vitamin C (water-soluble) are consumed.
- visit a health food or drug store to gather information on a specific vitamin supplement and report findings to the class.

MATERIALS:

- handout - "Too Much of a Good Thing?" (#6-4)
- worksheet - "Be a Vitamin Supplement Super Sleuth" (#6-4)
- handout - "Recommended Dietary Allowances of Vitamins" (printed on handout #6-4)

NOTE: Prerequisite knowledge of vitamins and general functions would be helpful. (Consult resource "Nutrients and Their Functions" for a general review.)

ACTIVITY: (see next page)

ACTIVITY. (2 days)

(Day #1)

1. Inform the class of the dual nature of this activity (see teacher's notes).
2. Ask students to speculate on any possible reasons why some people would take extra-large doses of one particular vitamin. (Some possible responses might be: Vitamin A to improve eyesight; vitamin C to prevent colds; extra "B" vitamins for pep & energy; vitamin E to slow down the aging process; etc.) *Review the normal functions of vitamins (see resource listed) to aid students in recognizing and/or discrediting any vitamin myths mentioned during the discussion.
3. Distribute copies of the handout entitled, "Too much of a Good Thing?" Discuss the toxic effects of vitamin "over-dosing" in class.
4. During this initial session, pass out the worksheets entitled, "Be a Vitamin Supplement Super Sleuth," and distribute copies of the handout "Recommended Dietary Allowances for Vitamins." Go over the directions on the worksheet with the class and establish a due date for the project (approximately 1 week later). Plan to set aside 30 minutes for discussion of the projects on the due date.

(Day #2 - One week later)

1. Discuss results of vitamin supplement "research project". Students can individually present findings recorded on their worksheets. Encourage the class to make comments.

Too Much of a Good Thing??

(Effects of taking an extra-large dose of vitamins)

Vitamin A

An overdose of vitamin A over a long period of time can:

1) Lead to severe headaches and tumor-like pressure inside the skull.
2) Dry, cracked skin
3) Hair loss
4) Stunted growth in children

Vitamin D

Taking very large doses of vitamin D can cause:

1) Nausea
2) High blood pressure
3) "Hardening" of your body's soft organs, such as the heart and kidneys.

Vitamin E & Vitamin K

Toxic effects from taking large amounts of these 2 vitamins are not well-known.

Remember: All the fat-soluble vitamins (A, D, E, & K) are stored in your liver and can last you a long time. So, there's no need to take any "extra" of a good thing - just eat a nutritious diet!

Vitamins B-complex

Namely, thiamine, niacin, riboflavin are all excreted in your urine if they are not needed by your body. Most people who take extra amounts of these water-soluble vitamins pay a lot of money $ just for nothing!

What about . . . VITAMIN C ??? Has anyone ever tried to tell you that lots of extra vitamin C pills will keep you from catching a nasty cold? Well, scientists have shown that this just isn't true. In fact, if you take too much vitamin C you could get:

1) Diarrhea (yuk!)
2) Kidney stones
3) Bladder stones

Stick to your oranges, grapefruit, strawberries, green peppers, tomatoes, cantaloupe, broccoli, and potatoes. (Can you think of some more good food sources of vitamin C?) These foods taste 100% better than those sour vitamin C pills!

Final Advice: Get enough of a "good thing" (vitamins) from fabulous food - that way you won't need to get too much from pills!!!

RECOMMENDED DIETARY ALLOWANCES FOR SPECIFIC VITAMINS

	VITAMIN A	VITAMIN E	VITAMIN C	NIACIN	VIT. B_6
MALES (ages 11-14 years)	4000 I.U.	8 I.U.	50 mg.	18 mg.	1.8 mg.
FEMALES (ages 11-14 years)	4000 I.U.	8 I.U.	50 mg.	15 mg.	1.8 mg.

mg. = milligrams; I.U. = International Units

Worksheet #6-4

BE A VITAMIN SUPPLEMENT "SUPER SLEUTH"

INSTRUCTIONS: Visit a local health food store or drug store and remember to take this paper and a pencil with you! Once in the store, ask a clerk to show you where the vitamin pills and supplements are shelved or displayed. Once you have found them, select one bottle, jar or package of a single vitamin such as "Vitamin C". Do not choose a multivitamin supplement (like "One-A-Day"). Read the label carefully and complete the information asked for below:

1. Write down the name of your chosen vitamin supplement: ______________________________

2. How much does it cost? ______________________________

3. How many pills or tablets are in your bottle or container? ______________

4. Does the label tell the source of the vitamin? (Example: Vitamin C from rose hips) ______________________________

5. Does the label recommend how many pills to take a day? ______________________________

6. How much of the vitamin is in each pill or tablet? (answer will be in milligrams (mg.), I.U.'s) ______________________________

7. What is your Recommended Dietary Allowance (RDA) for this particular vitamin (if there is one)? ______________________________

   (consult your copy of the RDA's).

8. List any toxic (harmful) effects you can think of that could be due to taking an extra-large dose of this vitamin? (Consult your handout, "Too Much of a Good Thing?") ______________________________

9. What foods could supply this vitamin? ______________________________

GENERALIZATION

Vitamin/mineral supplements are unnecessary if a well balanced diet is chosen.

TEACHER'S NOTES

TITLE: "To Take or Not to Take - That is the Vitamin Pill Question"

OBJECTIVES:

The student will:

- Recognize that vitamin and mineral supplements are unnecessary if a well-balanced diet is selected.
- Construct a one day's menu that will meet 100% of the 1980 RDA's (10-14 year olds) for vitamin A, vitamin C, calcium and iron.

*Note: Prerequisite knowledge of the RDA's required.

MATERIALS:

- Worksheet - "Food Can Do It Better Than a Pill!" (#6-5)
- "Mini" food composition tables for iron, calcium, vitamin C, and vitamin A.

ACTIVITY:

1. Begin by asking the class if anyone has ever taken a vitamin or mineral pill? If so, what type? (multiple vitamin, multiple vitamin with iron, vitamin C, calcium tablets, etc.) Take a tally and record on the blackboard.

2. Ask those students who have taken vitamin and/or mineral pills why they did/do. Some possible responses may be: their mothers suggested it; or as a result of watching a T.V. commercial or other ad. Again take a tally of class responses.

3. Ask students if they think a daily vitamin/mineral pill is necessary to meet their bodies' needs? Do they (students) think a well-chosen food plan could meet their daily requirements for vitamins and minerals just as well and easily?

4. Review the Recommended Dietary Allowances (RDA) with the class.

5. Distribute copies of the worksheet entitled "Food Can Do It Better Than a Pill!" Hand out copies of the "mini" food composition tables. These tables list the vitamin A, vitamin C, iron and calcium values of commonly eaten foods.

6. Explain to students that they are to construct a single day's menu that will meet 100% of their RDA's (11-14 year olds) for the following nutrients: Vitamin A, vitamin D, calcium and iron. (You may want to review functions of these particular nutrients at this time.) Instruct students to use their "mini" food composition tables for this project.

   Note: This activity can be an in-class project if time allows or assigned as homework to be discussed in class at a later date.

"FOOD CAN DO IT BETTER THAN A PILL!"

INSTRUCTIONS: Using your "Mini" food composition table, select foods for one day (meals and snacks) that will add up to 100% (or more) of your RDA's (listed below) for: Vitamin A, Vitamin C, calcium, and iron. When you select a food from the table, write it name and serving size (e.g. bread, 1 slice; banana, one medium-sized) in the appropriate spaces in the chart below along with the food's vitamin and mineral composition. When you have completed your one day's menu, add up the totals for each vitamin and mineral and subtract these values from your RDA for each of these nutrients. (The final values in the "difference" column below on the chart should equal "0" or be a negative number, indicating that your menu contains ≧ the RDA for that particular vitamin or mineral.)

FOOD CHOICE	Amount of Food	Vitamin C (milligrams)	Vitamin A (I.U.)	Calcium (milligrams)	Iron (milligrams)
TOTAL					
RDA (for my age)		50 mg.	5000 I.U.	1200 mg.	18 mg.
TOTAL (from above)					
DIFFERENCE					

Mini - Food Composition Table

FOOD	Iron	Calcium	Vitamin A	Vitamin C
	mg	mg	IU	mg
Apple, 1 fresh	0.4	10	120	6
Apple pie, 1 slice	0.5	13	50	2
Applesauce, sweetened, 1 cup	1.3	10	100	3
Apricots, 3 fresh	0.5	18	2890	11
Avocado, 1/2 fresh	0.6	11	310	15
Banana, 1 fresh	0.8	10	230	12
Beef pot pie, 1/3 of 9 in. pie	3.8	29	1720	6
Beef vegetable stew, 1 cup	2.9	29	2400	17
Beet greens, cooked, 1 cup	2.8	144	7400	22
Beets, 2 whole cooked	0.5	14	20	6
Biscuit, 1	0.4	34	T	T
Blueberries, 1 cup fresh	1.5	22	150	20
Bologna, 1 slice 4 1/2 in.	0.5	2	0	0
Bread:				
Cracked wheat, 1 slice	0.3	22	T	T
Rye (light), 1 slice	0.4	19	0	0
White, 1 slice, enriched	0.7	21	T	T
Whole wheat, 1 slice	0.8	24	T	T
Broccoli, cooked, 1 cup 1/2 in. stalks	1.2	136	3880	140
Cabbage, cooked, 1 cup	0.4	64	190	48
Cantaloupe, fresh, 1/2	1.1	38	9240	90
Carrot, 1 raw, whole	0.5	27	7930	6
Cauliflower, 1 cup cooked	0.9	26	80	69
Cheese, 1 slice, American	0.2	188	330	0
Chicken breast, 1/2	1.3	9	70	0
Chicken livers, 1 cup chopped	11.9	15	17220	22
Chicken pot pie, 1/3 of 9 in. pie	3.0	70	3090	5
Chile con carne, 1 cup	4.3	82	150	0

mg = milligram, = 1/1000 of a gram.

T - means food contains only trace amounts of this nutrient.

IU - International Units

FOOD	Iron	Calcium	Vitamin A	Vitamin C
	mg	mg	IU	mg
Chocolate candy, 1 oz. sweet	0.4	27	T	T
Chocolate chip cookie, 1	0.2	4	13	T
Chop suey, beef/pork, 1 cup	4.8	60	600	33
Corn, 1 ear	0.5	2	310	7
Corn grits, 1 cup cooked, enriched	0.7	2	150	0
Cupcake, 1 with chocolate icing	0.3	30	80	1
Doughnut, 1 cake-type, 3 1/4 in. diameter	0.6	17	30	T
Egg, 1 raw, medium	1.0	24	520	0
Fruit cocktail, 1 cup, heavy syrup	1.0	23	360	5
Gelatin, jello, 1/2 cup	.0	0	0	0
Gingerbread, 1 piece, from mix	1.0	57	T	T
Grapefruit, 1/2 pink, 3 3/4 in.	0.5	20	540	44
Grapefruit, 1/2 white	0.5	19	10	44
Grapes, 1 cup seedless raw	0.6	19	160	6
Hamburger, no roll, 3 oz. cooked	3.0	10	20	0
Ice cream, regular, 1 cup	0.1	194	590	1
Lamb chop, 1 broiled, 3 lb.	1.0	8	0	0
Lettuce, iceberg, 1 cup shredded	0.3	11	180	3
Liver, beef, 1 slice	7.5	9	45390	23
Macaroni, 1 cup enriched cooked	1.3	11	0	0
Macaroni and cheese, 1 cup, canned	1.0	199	260	T
Marshmallows	0.5	5	0	0
Milk, fluid:				
Chocolate, 1 cup, 2% bf	0.5	270	210	3
Skim, 1 cup	0.1	296	500*	2
Whole, 1 cup	0.1	288	350	2
Oatmeal, 1 cup cooked	1.4	22	0	0
Ocean perch, 1 breaded and fried fillet	1.1	28	T	T
Orange, 1 fresh	0.5	54	260	66
Oysters, 1 cup raw	13.2	226	740	0
Papaya, 1 cup fresh	0.4	28	2450	78
Peach, 1 fresh, 2 1/2 in.	0.5	9	1330	7
Peanut butter, 1 tbsp.	0.3	9	1	0

*fortified with vitamin A

T - means food contains only trace amounts of this nutrient.

FOOD	Iron	Calcium	Vitamin A	Vitamin C
	mg	mg	IU	mg
Pepper, 1 green	0.5	7	310	94
Pizza with cheese, 1 slice	0.7	144	410	5
Plum, 1 fresh	0.3	8	160	4
Popcorn, 1 cup with salt and oil	0.2	1	2	0
Pork chop, 1 cooked, 3 oz.	2.7	9	0	0
Potato:				
Baked, 1 in skin	1.1	14	T	31
French fries, 10	0.7	8	T	11
Chips, 10	0.4	8	T	3
Prunes, 10 dried, medium	2.5	33	1030	2
Pumpkin pie, 1 piece	0.8	78	3750	T
Raisins, 1/3 cup	1.5	27	10	T
Spinach, 1 cup cooked	4.0	167	14580	50
Strawberries, 1 cup fresh	1.5	31	90	88
Stuffed pepper, 1 beef	3.9	78	520	74
Sweet potato, 1 baked	1.0	46	9230	25
Tapioca pudding, 1 cup	0.7	173	480	2
Tomato, 1 fresh 7 oz.	0.9	24	1640	42
Tuna, 1/2 cup in oil, drained	1.5	8	65	0
Turnip greens, 1 cup cooked	1.6	267	9140	100
Turnips, 1 cup cooked	0.6	54	T	34
Veal roast, 1 1/2 oz.	2.9	10	0	0
Watermelon, 1 piece fresh	2.1	30	2510	30
Yogurt, 1 cup				
Skim milk	0.1	294	170	2
Whole milk	0.1	272	340	2

T - means food contains only trace amounts of this nutrient.

GENERALIZATION

Excessive alcohol consumption can be harmful to health and can increase the body's requirements for certain nutrients.

TEACHER'S NOTES

Grams of alcohol in 1 oz. of the following beverages:

Liquor	10 grams
- whiskey, vodka, gin, etc.	
Wines	
- table	3 grams
- dessert	5 grams
Beer (3.6% alcohol)	
- 12 oz.	13 grams

It is important to remember that alcohol is a source of calories: One gram of alcohol provides 7 calories! (Compare this to carbohydrates and protein which supply 4 calories/gram, and fats which provide 9 calories/gram.)

Lesson #6-6

TITLE: "Love Your Liver! Say 'Boo!' to Booze!"

OBJECTIVES:

The student will:

- Recognize that alcohol is a drug and that misuse of alcohol is one of the most serious drug problems in the U.S.
- Describe briefly the absorption of alcohol by the body.
- State 3 functions of the healthy human liver.
- List 3 effects of alcohol on the body.
- Name 3 nutrients (protein, thiamine and niacin) that are needed in greater amounts in a person's diet when s/he decides to drink a lot of alcoholic beverages.

MATERIALS:

- Handout - "Your Lovable, Lobular Liver" (#6-6)
- Worksheet - "Liver Lingo" (#6-6)
- Health professional - a physician, nurse or dietitian

RESOURCES:

Scott Foresman Health & Growth-5 textbook

ACTIVITY:

1. Ask students to name sources of alcohol, a drug, that some people consume. Explain that misuse of alcohol is thought to be the most serious drug problem in the U.S.
2. Have students read section in Scott Foresman - 5 (Health & Growth text) on alcohol absorption and effects on the body.

3. State that the liver is the one organ in the body that handles alcohol once it is consumed. Elaborate on the importance of the liver by distributing copies of the handout "Your Lovable, Lobular Liver" and reviewing the various liver functions listed.

4. Invite a health professional to come to your class and discuss the liver. Perhaps this individual could show slides or pictures of a healthy vs. a cirrhotic (or "scarred") liver and discuss the implications of liver disease (caused by excessive alcohol consumption) in general terms.

5. Explain to your class that when a person drinks a lot of alcohol, the body's need for protein and 2 vitamins - thiamin and niacin - increase. Also a person who drinks excessively may be "filling up" on alcohol rather than eating foods which contain the vitamins, minerals and protein a body needs to stay healthy. Conclude that alcoholism is not only a serious drug problem, but is also a major cause of nutritional deficiencies.

6. Distribute copies of "Liver Lingo" and have students complete this worksheet in class.

7. Optional:

   You may want to couple this cognitive-oriented lesson on alcohol with one focusing on the reasons why people drink or some other aspect of alcohol.

Handout #6-6

YOUR LOVABLE, LOBULAR LIVER

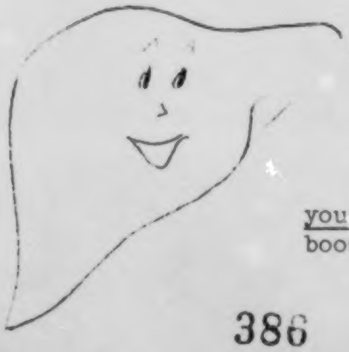
⇒ "I'm such a virtuoso! I know you couldn't bear to live without me! Here are just a few of my many talents:"

⇒ "I'm the master-mind when it comes to regulating the carbohydrates, proteins, and fats in your body!"

⇒ "When you cut yourself, I produce substances that are needed to clot your blood so it doesn't keep spilling out!"

⇒ "I'm a storage house for many vital vitamins and minerals, especially IRON!"

⇒ "I detoxify harmful substances - - so they can't hurt you!"



⇒ "Finally, I metabolize alcohol very, very slowly - - at the rate of 1/2 oz. (1 Tablespoon) an hour!! Alcohol is my arch enemy - - it can scar my beautiful body & keep me out of business for you. Please protect me and don't drink booze! We'll love each other for it!"

Worksheet #6-6

LIVER LINGO

DIRECTIONS: Match the terms under the "Liver Lingo" column with the correct phrase on the left.

1. Misuse of __________ is thought to be the most serious drug problem in the U.S.

2. The liver is a "storage house" for this important mineral: ________.

3. What your liver does to harmful substances: __________________.

4. When a person drinks a lot of alcohol, the body's need for this vitamin is increased: _________.

5. The _______ regulate carbohydrates, proteins and fats in your body.

6. The liver metabolizes alcohol at rate of one _____ per hour (or ________ ounces per hour).

7. This is the medical term for a "scarred liver": ___________.

LIVER LINGO

A. ALCOHOL
B. LIVER
C. THIAMIN
D. IRON
E. DETOXIFY
F. TABLESPOON
G. 1/2
H. CIRRHOSIS
I. METABOLIZE
J. 2/3
K. CALCIUM
L. BEER
M. KIDNEY
N. DISSOLVE
O. CIGARETTES

GENERALIZATION

The nutritional value of fast foods depends on wise selection by the consumer.

TEACHER'S NOTES

TITLE: "Fast Facts about Fast Foods"

OBJECTIVES:

The student will:

- list 5 generalizations about menu items offered by popular fast-food chains.
- be able to select the most nutritious choices from a menu at a given fast-food establishment.
- list several ways that menus at fast food restaurants can be improved and recognize that if enough people speak up, changes will be made.

MATERIALS:

- handout - "Pocket Guide to Nutritional Choices at Fast Food Restaurants" (#6-7)
- worksheet - Fast Food Menu, "The Burger Barn" (#6-7)

ACTIVITY:

1. Begin by asking students if any of them have ever eaten at a fast food restaurant and,if so, which one(s)? What kinds of food did they order? Does the food taste the same everytime they go to a certain restaurant (e.g. McDonald's)?

2. Tell the class that now you are going to make some general statements about fast food meals:
   a) Most fast food restaurants don't offer much variety in their menus; there are very few food choices!
   b) Fast foods are generally very high in calories - one hamburger + french fries + milkshake meal can supply up to 1/2 of a person's daily energy needs!
   c) A major contributor to the caloric value of typical fast-food meals is the beverage selection. A large chocolate malt may give you as much as 800 calories! (One cup of

whole milk has only 160 calories, in comparison.) Usually, the "shakes" are not called "milkshakes" since they often do not contain milk and/or ice cream. (They are generally made of non-fat milk solids plus thickening and sweetening agents.)

d) Fast food meal combinations are usually adequate in protein. Ask the class to name sources of protein that could be found on fast food restaurant menus. (Some examples are: hamburger meat, fried chicken, cheese, refried beans - such as in burritos, fried fish fillets, and a variety of pizza toppings).

e) The dietary fiber content of most fast food meals is very low.

f) The sodium (or salt) content of some fast foods is extremely high. Have students speculate as to which fast foods contain a lot of salt. (Examples are: french fries; pizza - cheese, tomato sauce, sausage, Canadian bacon and other toppings are high in salt; hot dogs, etc.)

g) The fat content of many fast foods may be very high (e.g. fries, pies, cheeseburgers, fried chicken, fried fish).

3. State that the class will now learn how to make the best nutritional choices at fast food restaurants. Distribute copies of the handout, "Pocket Guide to Nutritious Choices at Fast Food Restaurants." As a group, discuss the suggestions listed on the pocket guide. Are students surprised at any of the suggestions?

4. Instruct students to cut-out the front and back sides of the "pocket guide". These can then be glued or stapled together (back sides together so printing is on both sides). The "guide" can then be folded along the lines as illustrated on the handout. Inform students that they can keep this guide to nutritious fast food selections in their wallets, purses, pockets, etc. for quick and easy reference whenever they find themselves ordering fast food meals.

5. Summarize by saying that fast foods can provide part of a person's daily nutritional needs, if they are chosen intelligently and if a person doesn't eat them on a daily basis but alternates them with other foods to provide a varied diet.

6. Pass out copies of the worksheet entitled, "The Burger Barn" (fast food menu). Go over the instructions printed on the worksheet with the class and allow 10-15 minutes for its completion Review the answers to questions A and B in class - have students volunteer their meal selections, suggestions for improvements, etc. (You may want to collect these worksheets and make comments where appropriate.)

7. Many fast food restaurants can stand some improvement-increased menu variety and some changes in food preparation could improve the nutritional quality of fast foods. Explain to students that business often responds to the demands of the customer. Suggest that your students remember to:
   a) Ask for more salad bars and patronize restaurants that do have them.
   b) Request better beverage choices - lowfat milk, a variety of fruit juices.
   c) Request that less salt be used in the preparation of fast foods.
   d) Ask for whole wheat hamburger buns, whole wheat pizza crust, whole wheat and/or stone-ground corn tortillas/taco shells.
   e) Ask for a published list of the nutritional values of foods served.

*Remind students that if enough people speak up, changes for better nutrition and better health will be made!

8. (Opt.) As an extra project, students could write a letter to a fast food company and mention the suggestions discussed earlier.

9. (Opt.) A field-trip to a pizza (or other) restaurant could be scheduled. If a salad bar is offered, students should take note of the various salad "fixings" and identify unknown ones (e.g. garbanzo beans, sprouts, etc.).

POCKET GUIDE TO NUTRITIOUS CHOICES AT FAST FOOD RESTAURANTS

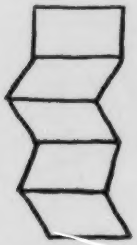
Handout #6-7

This guide will give you some ideas about what to do whenever you get:

- a PASSION for PIZZA
- a HUNGER for HAMBURGERS (commonly known as a "Big Mac attack")
- a TASTE for TACOS
- a FRENZY for FRIED CHICKEN
- "HOOKED" on FISH 'N CHIPS

INSTRUCTIONS:

1. Cut-out both the "FRONT" and "BACK" columns.
2. With back (blank) sides together, either paste or staple the 2 pieces of paper together.
3. Fold along dark lines like so:



4. Keep the guide in your wallet, pocket, or purse for quick and easy reference!

FRONT

PIZZA POINTERS:

1. Pizza is almost a whole meal in itself-crust (bread), cheese, tomato sauce, meat topping. AVOID salty toppings like sausage, and pepperoni.
2. Order whole wheat crust, if you can.
3. Order salad bar with your meal for fresh vegetables & more fiber.

HAMBURGER HINTS:

1. Avoid large size orders of high fat, high cholesterol foods (such as a double cheeseburger). Order a smaller burger, instead.
2. Avoid french fries or split an order with a friend.
3. Skip the sweets - shakes and pies.
4. Order extra lettuce and tomato.

TACO TIPS:

1. Generally, most of these foods are pretty nutritious. Try beans with cheese- they are a great combo!
2. Avoid ordering the "supreme" versions - they often contain olives (high in salt) and sour cream (high in fat).

"FINGER-LICKIN' GOOD" POINTERS (Fried Chicken)

1. Chicken is a good source of protein. If you want to cut down on the calories & fat, remove the coating from the chicken pieces before you eat it.
2. Avoid the gravy on mashed potatoes.
3. Coleslaw is made from cabbage (good Vit.C source).

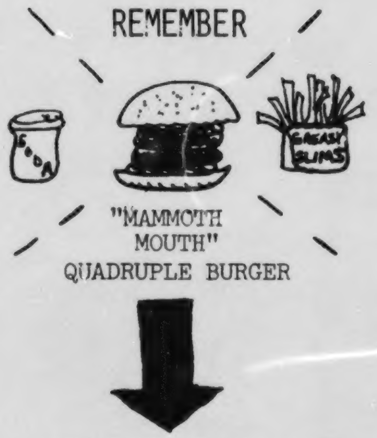
FISH 'N CHIPS TIPS

1. Almost all of the fish (& chicken) selections are breaded & fried-that means high in calories & fat. But, you can "peel off" the breading at the table & eat the juicy fish inside!
2. Coleslaw is made from cabbage (good Vit. C source)

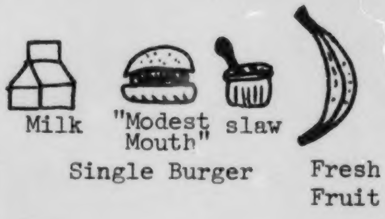
BACK

OTHER HINTS:

1. Take along a piece of fresh fruit for dessert (such as an apple, pear, banana, orange).
2. Order ice-water, low-fat milk, or fruit/vegetable juice (such as orange juice, tomato juice, V-8 - if available) in place of high calorie soda or shakes.
3. Don't add extra salt to anything!

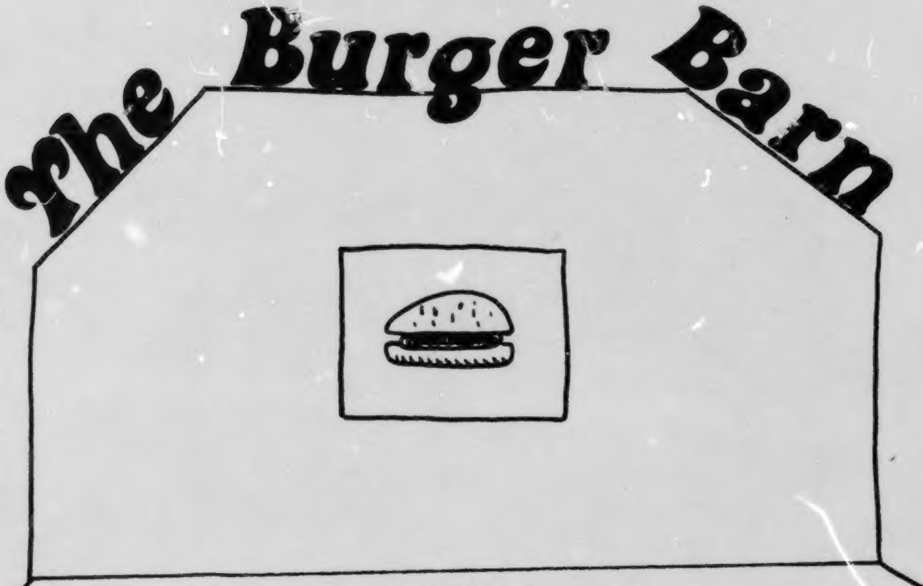


THE BETTER CHOICE!



Worksheet #6-7

FAST FOOD WORKSHEET



MENU

SANDWICHES:

1. Hamburger
2. Cheeseburger
3. Double-Decker Burger (2 hamburger patties, 2 slices cheese, & a big glop of mayonnaise on a white bun)
4. Fried fish fillet

SIDE ORDERS:

1. French Fries
2. Onion Rings
3. Coleslaw

BEVERAGES:

1. Soda
2. Milk (whole or chocolate)
3. Orange juice
4. Shakes
5. Ice-cold water (FREE!)

DESSERTS:

1. Fried Pies (with fruit goo inside)
2. "Cartoon" cookies
3. Ice Cream Sundaes (Hot Fudge Sludge or Strawberry Sauce)

DIRECTIONS:

A. Choose a nutritious lunch from the menu items listed above. (Note: You do not have to select items from every menu category).

____

____

____

B. How could you improve the nutritional quality of this menu? List at least three specific suggestions:

____

____

GENERALIZATION

The amount of energy a person takes into his/her body should match the amount of energy she/he expends.

TEACHER'S NOTES

In this activity, students will discover the importance of maintaining their ideal weight as they explore the relationships among diet, physical activity, and weight control. They identify how much time it takes to use up the calories supplied by a saltine cracker and discuss the importance of balancing energy intake with energy output.

Estimated teaching time: 40 - 55 minutes

TITLE: "It's All a Matter of Balance"

OBJECTIVES:

The student will:

- identify the relationship among diet, activity level, and weight.

MATERIALS:

- stopwatch or clock/watch with a sweep second hand
- chocolate bar with almonds (1) - or wrapper
- saltine crackers (1 cracker per student)

ACTIVITY:

1. Begin by holding up a saltine cracker and asking students:

   -"How many calories are in the saltine cracker?" (Ans.: 12 calories) Record the student responses to the following questions on the chalkboard.
   -"How long would you need to sit at your desk to use up the energy in the cracker?"
   -"How long walking?"
   -"How many minutes of running?"

   At this point do not acknowledge any correct or incorrect response.

2. Explain that they (students) will now have a chance to see exactly how much time it takes to use up the number of calories provided by the cracker.

3. Pass out 1 cracker to each student and instruct students to eat it.

4. Have students count-off up to 4, e.g. 1, 2, 3, 4, 1, 2, 3, 4, etc. Assign students to the following activities:

   -All 1's run around the edge of the classroom (single file).
   -All 2's walk up and down a designated aisle.
   -All 3's sit at their desks and write or doodle.
   -All 4's lie down in a safe spot where they won't be stepped on.

5. Explain that as soon as you say "go!", students in each group should begin their assigned activity. Mention that they should not stop until you tell them to do so.

6. Time the students while they complete their activities. Have the appropriate groups stop and return to their seats as their time has elapsed:

   - 1's (running) 1 minute, 15 seconds
   - 2's (walking) 3 minutes
   - 3's (sitting) 8 minutes
   - 4's (lying) 11 minutes

7. As each group finishes, ask them:

   - "How did you feel during the activity?"
   - "Did you work up a sweat?"
   - "Was the cracker worth the amount of effort involved in using up its calories?"
   - "What other types of activities would use up about the same amount of energy?"

8. Tell the 3's that they will be sitting and writing for 8 minutes to use up 1 cracker. Have them calculate how many crackers they would use up in 1 class period, e.g. 40 minutes + 8 minutes per cracker = 5 crackers.

9. Turn your attention to the 4's. Tell them that they will have to lie there for 11 minutes before they use up the energy in 1 saltine cracker - - that's barely over a calorie a minute. (Actually 1.1 calories/minutes) Have the 4's determine how many calories they would use up in 8 hours of resting (1.1 cal./min. X 60 min./hour X 8 hours = 528 calories.).

10. Raise the question:

    - "If it took 11 minutes of resting to use up one cracker, how much time whould it take to use up something higher in calories, like a candy bar?"

11. Hold up the milk chocolate bar with almonds and ask:

    - "How many calories do you think are in this candy bar?" (Ans. 180 calories)

12. Tell the 1's that they used up about 10 calories each minute they ran. Ask them:

    - "How many minutes would you have to run to use up the energy in this 180 calorie candy bar?" (Ans. 18 minutes).
    - "If you could run 1 mile in 9 minutes, how many miles would you have to run to use up the energy in the candy bar?" (Ans. 2 miles)

13. Point out that you must run for 18 minutes to use up the energy in the 180 calorie chocolate bar. State that whether a person is aware of it or not, the food s/he eats every day and exercise done are balanced against each other.

14. **Ask** the class:

    - "What would happen if someone continuously ate more food than they used up?" (Ans.: That person would gain weight).
    - "What would happen if a person exercised a lot more?" (Ans. If a person continually uses more energy than s/he takes in, that person will lose weight.)

15. Summarize by stating how important it is that a person balance the amount of food eaten with exercise and activity in order to maintain an "ideal" body weight. Emphasize that persons who are excessively overweight or excessively thin have more health problems than persons of "ideal" body weight.

This lesson is one of 22 learning activities from National Dairy Council's Food...Your Choice Health Program for grades 7-10. Used with permission in this Nutrition in Health package only.

GENERALIZATION

All fortified foods and all foods for which a nutritional claim is made must display nutrition information on the labels.

TEACHER'S NOTES

TITLE: "Be a Label Detective" Lesson #6-9

OBJECTIVES:

The student will:

- Distinguish between food labels and nutrition information panels.
- List 3 components of a food label
- List 3 components of a nutrition information panel
- Recognize that all fortified foods and all foods for which a nutritional claim is made must display a nutrition information panel on the package.
- Examine and evaluate information on a cereal box label.

MATERIALS:

- Handouts: "Reading Food Labels" (#6-9A)
  "Reading Nutrition Information Panels" (#6-9B)
- Worksheet: "Be a Label Detective" (#6-9)

ACTIVITY:

1. Begin by asking students how many of them read food labels? What kind(s) of information are found on labels? What would happen if foods were not labelled?

2. State that there are 2 kinds of labels on food packages-food labels and nutrition information panels. Explain to the class that they are going to learn how to read both kinds.

3. Distribute copies of the handout, "Reading Food Labels."

4. State that food labels vary. However, certain information must appear on labels according to laws set up by the government.

5. Go over the handout with students.

6. Pass out copies of the second handout, "Reading Nutrition Information Panels". Go over this handout aloud, also.

7. Discuss with the class how nutrition information panels can be used. Mention that nutrition labeling can help us:

   A. Identify foods that are good sources of protein, vitamins and minerals.

   B. Compare and contrast nutrient content of a variety of foods.

   C. Compare the nutrients in the same type of food processed in different ways (e.g. canned vs. frozen peas).

   D. Choose foods giving us the best nutrition for the money spent.

   E. Choose foods giving us the best nutrition for the calories consumed.

8. Distribute copies of the worksheet, "Be a Label Detective". Go over the directions with the class and allow 1-2 days for its completion. Set aside class time to discuss the worksheets. Some questions you might want to ask are:

   - How many of you found a cereal at home where sugar was the 1st ingredient? (or corn syrup, sucrose, honey, brown sugar, etc.)

   - How many of you found a cereal label that had sugar (or one of its "other names") in the top 5 ingredients?

   - How many found a cereal fortified with vitamins?

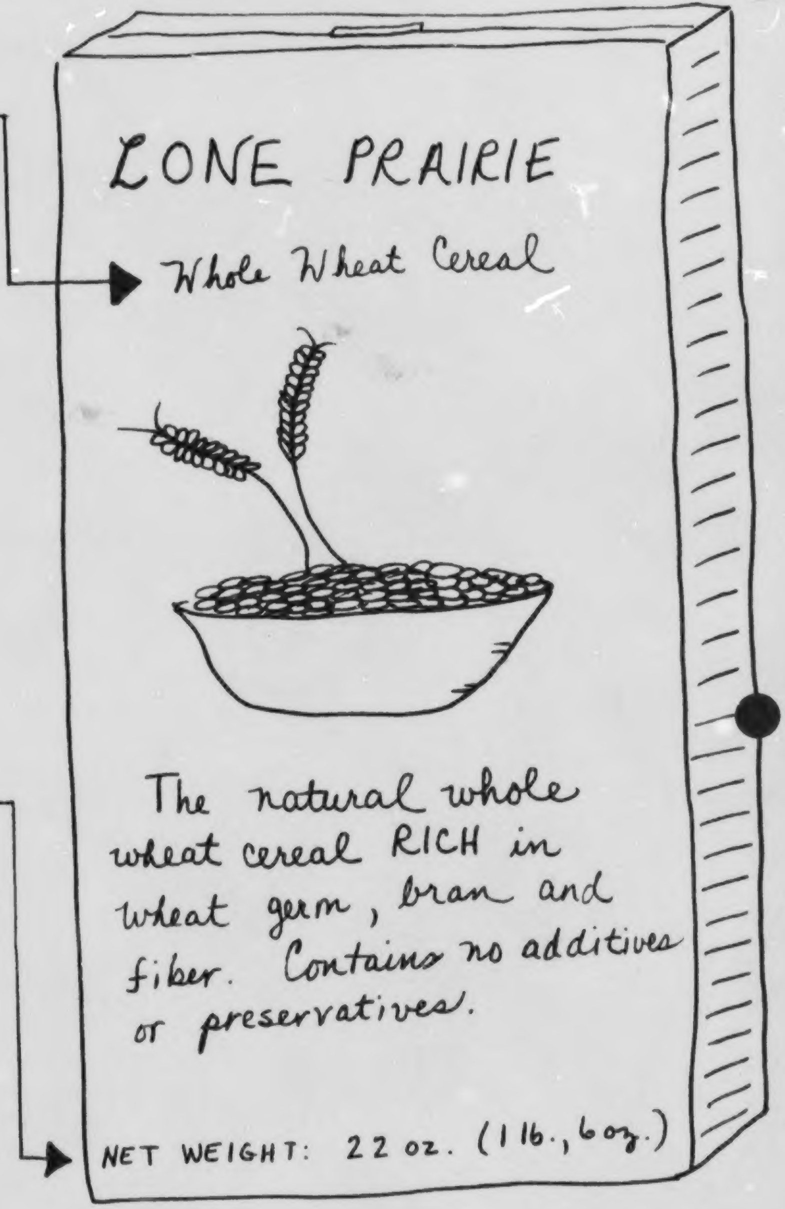
   - How many found a cereal fortified with iron?

READING FOOD LABELS

THE FOLLOWING INFORMATION APPEARS ON THE FRONT OF A FOOD CONTAINER:

- The usual or common name of the product.

  This name connot be false or misleading. If the food is a mixture, the name depends on the amount of each food in the mixture. The foods in the name must be listed in order by weight, with the food present in the greatest amount listed first. For example, a can of "noodles and tomato sauce" has more noodles by weight than tomato sauce. Get it?


LONE PRAIRIE
Whole Wheat Cereal
The natural whole wheat cereal RICH in wheat germ, bran and fiber. Contains no additives or preservatives.
NET WEIGHT: 22 oz. (1 lb., 6 oz.)

- Net contents or net weight.

  The net weight on canned food includes the liquid in which the food is packed, such as water in canned vegetables and syrup in canned fruit.

** Other information required to be shown on food labels include:

- Ingredient list - Ingredients must be listed in order, with the ingredient present in the greatest amount listed first, and the smallest last.

  and (This information appears on the side panel of the food package.)

- The name and address of the manufacturer, packer or distributer.

Handout #6-9B

READING NUTRITION INFORMATION PANELS

* The U.S. government requires that nutrition information panels must appear on foods that:

- are fortified or have nutrients (such as vitamins) added to them.
- make a nutrition claim, such as "one glass gives you a day's supply of vitamin C".
- are labeled "low calorie", "sugar free", or "diet".

* The nutrition information panel must contain:

- the size of one serving
- the number of servings in the container
- the number of calories in one serving
- the amounts of nutrients in one serving

* The following nutrients must be listed on the panel:

- protein
- carbohydrate
- fat
- vitamin A
- vitamin C
- thiamin
- riboflavin
- niacin
- calcium
- iron

(if the food contains other nutrients, they may also be listed.)

*Amounts of protein, carbohydrate, and fat are given in grams. A gram is a metric measure smaller than an ounce. The symbol for gram is "g".

*Protein, vitamins, and minerals are given in percentages of the U.S. RDA. The percentages for each nutrient in food eaten each day (not each meal) should add up to about 100%.

*The nutrition information panel must appear to the right of the main panel on a food container label. It has a standard format, as shown in the sample below:

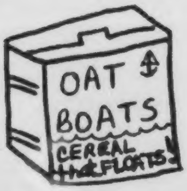
NUTRITION INFORMATION
(per serving)

Serving size = 8 oz.	Servings per container = 1
Calories 560	Fat .... 33 g
Protein ..... 23 g	Carbohydrate .... 43 g

Percentage of U.S. Recommended Daily Allowances (U.S.RDA)

Protein	35	Thiamin	15	Calcium....	2
Vitamin A	35	Riboflavin..	15	Iron	25
Vitamin C	10	Niacin	25		

Be a Label Detective ....



DIRECTIONS:

Look at a box of breakfast cereal in your home. Use the box's food label and nutrition information panel to answer the following questions.

1. Name of the cereal ______________________________

2. How much do the contents of the cereal box weigh (when full)? ______________

3. Write the first five ingredients here:

#1 ______________________________

#2 ______________________________

#3 ______________________________

#4 ______________________________

#5 ______________________________

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4. Why is it important to know which ingredient is listed first?

____

5. Is your cereal fortified or enriched with vitamins? If so, which ones?

____

____

____

6. Is your cereal fortified or enriched with minerals (such as calcium, iron, magnesium, or zinc)? If so, which ones?

____

____

7. How many grams of protein does your cereal contain per serving? ______ grams protein per ______ ounce.

8. What is your opinion of the overall nutritional value of the cereal? Why?

____

GENERALIZATION

Nutrition labels can be used in many ways.

TEACHER'S NOTES

2 resources that will be helpful in terms of reviewing labeling are the following (both are found in the appendix section of this package):

1) Food Labels and How to Read Them

2) FDA Consumer Memo "A Consumer's Guide to Food Labels"

TITLE: "Supermarket Scavenger Hunt" Lesson #6-10

OBJECTIVE:

The student will:

- Do some careful label reading in a local supermarket.

MATERIALS:

- Worksheet - "Supermarket Scavenger Hunt" (#6-10)

* * Prerequisite knowledge of label reading required.

ACTIVITY: (2 Days)

DAY 1:

1. Review information found on food labels.
2. Review information found on nutrition information panels.
3. Distribute copies of "Supermarket Scavenger Hunt."
4. Explain to students that the purpose of this exercise is to require them to do some very careful label reading in a local supermarket or grocery store. Have students take a close look at the 12 items listed on their handout.
5. State that each student (or pair of students working together, if you wish) is required to find what the scavenger hunt list describes within the next 48 hours (2 days) and provide evidence of his/her findings.

NOTE: In no case is a studen required to purchase items at a store for this activity! Students should bring written evidence of the item's existence, (as requested on the handout) and/or bring the item from home if available.

DAY 2: (See next page)

DAY 2:

1. Go over each of the 12 items on the "Supermarket Scavenger Hunt" sheet. Have each student (or pair of students) share the information s/he found, not only names of food items, but "evidence" where appropriate. Did other students find the same information? Do other students disagree with answers given?

   *Challenging the findings of other students is important to this activity. Disagreements should be discussed.

Worksheet #6-10

SUPERMARKET SCAVENGER HUNT

1. Find a cherry-flavored food that contains no real cherries. Product name is:

____

2. Find 2 different foods that have water listed as the main ingredient. The product names are: ______________________

____

3. What food company makes Jello brand gelatin?

____

4. Find a package with nutrition labeling. The food product name is: ____________________

5. What is the main ingredient in a Hostess Twinkie?

____

6. Find 2 food products that are labelled "fortified" or "enriched". The product names are: ______________________

____

7. Find 2 different breakfast cereals that have a toy or game inside the package (read the label to find out). The cereal names are:

____

____

8. Find a brand of hot dogs preserved with nitrates or nitrites. The brand name is:

____

9. How much does 1 pound (16 ounces) of lentils or split peas cost?

____

10. Find a box of crackers with whole wheat listed as the main ingredient. Cracker name is:

____

11. Find 3 different brands of hot cereal. The brand names are:

____

____

____

12. Which is cheaper on a per pound basis? whole chickens, chicken parts, or chicken quarters? Answer: ______________________

GENERALIZATION

Excessive salt (sodium) consumption can be harmful to health.

TEACHER'S NOTES

(See next page)

TITLE: "Halt the Salt" Lesson #6-11

OBJECTIVES:

The student will:

- List one health problem associated with excessive salt (sodium) consumption.
- Identify three (3) foods that are high in sodium.
- Identify three (3) foods that are low in sodium.
- Read food labels to ascertain if a given food product contains a significant amount of salt (sodium).
- Prepare and sample a low-salt snack.

MATERIALS:

- Handout - "Salt Talk" (#6-11)
- Worksheet - "Search for Hidden Salt" (#6-11)
- Recipe - "Fresh Fruit Fantastic" (#6-11)

ACTIVITY: (2 Days)

Day 1:

1. Begin by asking students how many of them salt their foods at the table. Ask those that do why they salt their food. (Flavor, parents do it, etc.) Ask students if they know of anyone (parent, grandparent, or other relative) who has to restrict their use of salt because the Dr. told them to.
2. Distribute copies of the handout entitled, "Salt Talk", Go over each of the items individually and discuss them with the class.
3. Ask the class to name as many salty snack foods as they can. (Potato and corn chips, Doritos, Taco chips,

3. (Cont'd.)...

pretzels, snack crackers, salted nuts, salted popcorn, etc.) Has anyone ever tried plain, unsalted popcorn? Encourage students to try it sometime.

4. Explain to students that it is important to be aware of the total amount of salt they eat each day. State that it's fairly easy to control the amount of salt added to foods with a salt shaker, but it's difficult to figure out how much salt is already in the foods that we eat unless we read the labels.

5. Pass out the worksheet, "Search for Hidden Salt." Go over the instructions with the class. Allow 2-3 days for its completion as a homework assignment. Establish a "due date".

Day 2:

1. Discuss the worksheets in class. Were students surprised to find salt in certain foods? Which ones? What food items had salt listed in the top 5 ingredients?

2. State that the best way to avoid eating too much salt is to:

   A) Eliminate using the salt shaker at the table, or use it very lightly.

   B) Eat more fresh, unprocessed foods. Remind students that fresh fruits and fruit juices are naturally very low in salt and sodium. (Optional - Have the class name as many different fruits and/or fruit juices as they can.)

   C) Read labels.

3. As a class, prepare the low salt snack, "Fresh Fruit Fantastic" (see recipe). Recipe can be copied and sent home with students, if desired.

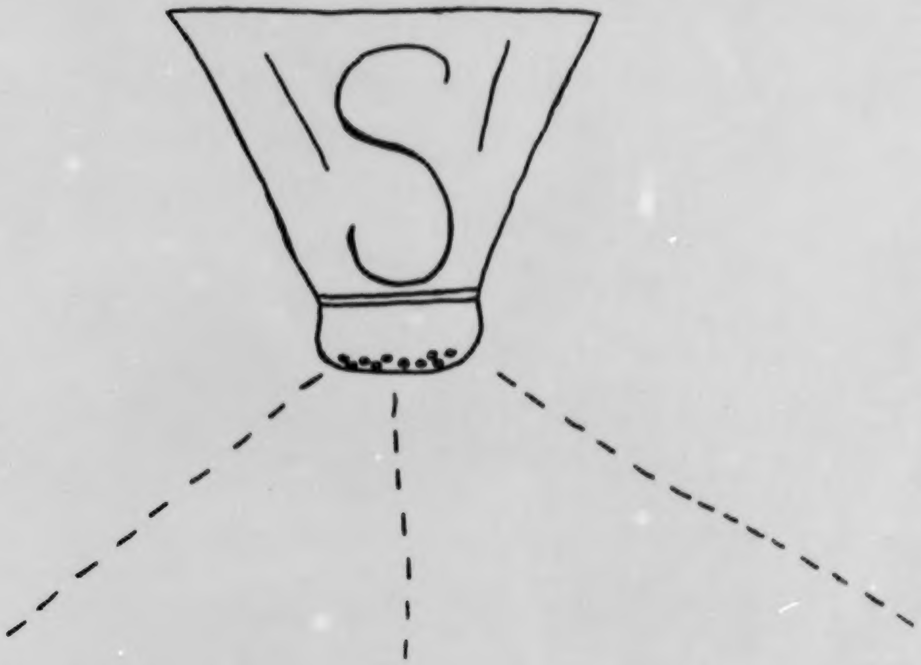
TEACHER'S NOTES:

Salt is made up of 2 minerals - sodium and chloride. Both are needed by the body. However, too much sodium (which makes up 40% of the weight of common table salt) can contribute to high blood pressure (hypertension) which in turn contributes to 2 of the 3 leading causes of death in American's - heart attacks and strokes.

The U.S. Surgeon General, the U.S. Department of Agriculture, the American Heart Association, and the U.S. Department of Health and Human Services all have recommended that Americans cut their salt intake.

Americans consume about 8-15 pounds of salt per person each year. About half of that comes from processed foods. About 1/3 of our sodium intake is added at the table or in cooking - the rest occurs naturally in foods. The human body's daily sodium requirement is about 200 milligrams (mg) - but there is more than that in a single hot dog! The "estimated safe & adequate intake" (determined by the National Academy of Sciences) is 1,100 to 3,000 per/day. Yet most Americans consume between 4,000 to 10,000 mg daily! (One teaspoon of salt contains 2300 mg of sodium). It is easier to change the diets of children than those of adults. When presenting this activity, explain to your class that it is smart to eat "right" now in order to prevent health problems resulting from eating too much salt that could show up later in life.

SALT TALK



Salt is made up of 2 minerals - sodium & chloride. Both are essential to your body - in fact, you couldn't live without them! Sodium & chloride help control the water balance in your body, among other things.

Did you know that 20 salted french fries doused with 2T. of ketchup could supply you with half of your daily requirement of sodium?

Many foods high in sodium don't taste salty! For example, fruit pies, instant pudding, & peanut butter are all high in sodium.

Americans eat an average of 2 to 2½ teaspoons of salt each day! That adds up to about 8½ pounds a year!

A healthy person can normally handle a wide range of sodium intake. However, there is evidence that excessive sodium intake can lead to high blood pressure in some people. This serious disease can lead to strokes, heart disease, and kidney problems. Do you know anyone with these problems?

The salt you use out of the salt shaker represe[illegible] only about 1/3 of all t[illegible] salt in your diet. About 1/2 comes from processed foods (like hot dogs, lunch meat, pickles, processed cheese slices, canned soups, frozen dinners, mustard & ketchup, and salty snack foods). The rest of the salt you eat occurs naturally in food and in some drinking water.

Foods naturally low in sodium include fresh fruits and fruit juices. Eat more of these, and less of processed foods!

Search for Hidden Salt

Salt is a very common food additive - it's used to flavor and preserve foods. A lot of the salt we eat is "hidden" - we can't see it or taste it in the food. It is important to read the ingredient list on food labels to see just how much salt you eat each day. Words to look for are: salt, sodium, brine, and the symbol "Na".

INSTRUCTIONS: When you are home, find 10 packaged foods in your kitchen cupboard and 10 packaged foods in your refrigerator that have the words "salt", "sodium", "brine," or the symbol "Na" in the ingredient list on the package label. Complete the following information:

A. PACKAGED FOODS IN CUPBOARD

	Name of food	Salt term on label	Was this term listed as one of the top 5 ingredients?
*	Example: Peter Pan Peanut Butter	salt	yes
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

B. PACKAGED FOODS IN REFRIGERATOR

*	Example: Heinz Tomato Catsup	salt	yes
1.			
2.			
3.			
4.			
5.			
6.			
7.			
8.			
9.			
10.			

EQUIPMENT/SUPPLIES:

Knives

Cutting boards or surfaces

Large bowl

1/2 cup measure

Measuring spoons

Stirring spoon

- - -

Paper plates

Napkins

Plastic spoons

NAME OF RECIPE: "Fresh Fruit Fantastic"

INGREDIENTS:

5 medium apples

3 bananas

3 pears

1 T. lemon juice

1/2 cup raisins

1 - 8 oz. carton vanilla-flavored yogurt

1/4 t. ground cinnamon

PROCEDURE:

1. Assign students to: a) core & chop apples, b) slice bananas, and c) chop pears. *Discuss the safe use of sharp knives!
2. Mix fruit together lightly in large bowl. Sprinkle with 1 T. lemon juice to prevent browning.
3. Mix the raisins, cinnamon, and yogurt together.
4. Pour the yogurt dressing over the fresh fruit. Mix lightly.
5. Serve! (Approx. 1/4 cup per student)

NOTE: This is a low-sodium snack. (Fresh fruit is naturally low in sodium.)

GENERALIZATION

Energy can be saved by bypassing some of the steps in the food production and distribution system.

TEACHER'S NOTES

(See Teacher Background Information following Activity.)

TITLE: "Fossil Fuel and Food"

Lesson #6-12

OBJECTIVES:

The student will:

- List the energy-using steps involved in the production, marketing, and preparation of various food items.
- List 3 ways energy can be saved in the food system.
- Distinguish between foods in their original and processed forms.
- Identify foods which "cost" the least energy to produce, market and/or prepare.

MATERIALS:

- Handout - "Energy Steps in Our Food System" (#6-12)
- Worksheet - "How Much Processing?" (#6-12A)
- Worksheet - "Conservation Cuisine" (#6-12B)
- Pencils

ACTIVITY:

1. Begin by asking studetns to name the fossil fuels (coal, oil, and natural gas). State that these fuels are used for heating and to produce electricity. Gasoline that powers cars and trucks comes from oil.

2. Explain that the energy from fossil fuels is needed in every step of the food system to: grow food, process it (processing usually includes applying heat or cold, combining ingredients, and packaging the products to

2. (Cont'd.)...

keep them clean, undamaged, and attractive to the buyer), transport it (trains, trucks and planes), store it, cook it, and dispose of any wastes (food waste and packaging waste).

3. State that because we are running out of fossil fuels, it has become necessary to conserve as much as possible. Mention that some food products take more energy to produce than others. One way we can save energy is to decrease our consumption of those foods that use the most energy.

4. Divide the class into 2 groups. Instruct each group to think about the production, marketing, and preparation of a frozen meat item like a roast beef T.V. dinner (just the meat part). Ask each group to list all the energy - using steps involved from "farm to table". (Each group should be equipped with pencil and paper). Allow 15-20 minutes for this.

5. Have a member from each group go to the chalkboard and write down the list of steps his/her group came up with. Allow a few minutes for students to compare and discuss the 2 lists. Which list seems most complete?

6. Pass out copies of the handout, "Energy Steps in our Food System". Review the 12 steps as shown in the diagram.

#1. Energy is needed to produce chemical fertilizers and pesticides to grow grain to feed to the cows.

#2. Energy is needed to run farm equipment (like tractors, combines, harvesters, etc.) for plowing planting, cultivating, and harvesting the grain to feed the cows.

#3. It takes energy to feed the cows in a feedlot.

#4. Gasoline is needed to transport the cattle to the stockyard and the slaughterhouse.

#5. Energy is needed to kill the cattle in the slaughterhouse.

#6. More gasoline is needed to transport dead cattle to the meat processing plant. Extra energy is needed to refrigerate the truck.

#7. Energy is used to cut, trim, pre-cook, freeze and package the meat for the T.V. dinner.

#8. More gasoline is needed to transport the T.V. dinner to the grocery store. Again, extra energy is needed to refrigerate the truck (the T.V. dinner has to stay frozen!).

#9. The grocery store uses energy to keep the meat dinner frozen.

#10. Your family car uses gasoline to take you (or your Mom or Dad) to the grocery store to buy the frozen T.V. dinner and also to take you back home again!

#11. Energy is needed to store the meat in the freezer at home and cook in the oven later.

#12. After you cook the T.V. dinner, there is energy used by the garbage truck to come and take away the empty package you threw out in the trash.

* Conclude by emphasizing that many different energy consuming steps are involved to get a frozen meat dinner from the farm to the table!

7. Ask students what specific steps on their energy diagram would be involved in producing a frozen vegetable (for example, frozen carrots). Answer: Steps 1, 2, 6, 7, 8, 9, 10, 11, & 12. State that meat usually requires much more energy to produce and market than plant foods.

8. Ask the class what energy steps could be involved if they bought a fresh vegetable (for example, lettuce) in a supermarket? Again, have students consult their diagrams. Answer: Steps 1, 2, 6, 7 (the lettuce would only be cleaned and packaged in cellophane, not frozen), 8 (the truck would be for cool storage, not frozen storage),

GENERALIZATION

Energy can be saved by bypassing some of the steps in the food production and distribution system.

TEACHER'S NOTES

(See Teacher Background Information following Activity.)

TITLE: "Fossil Fuel and Food"

Lesson #6-12

OBJECTIVES:

The student will:

- List the energy-using steps involved in the production, marketing, and preparation of various food items.
- List 3 ways energy can be saved in the food system.
- Distinguish between foods in their original and processed forms.
- Identify foods which "cost" the least energy to produce, market and/or prepare.

MATERIALS:

- Handout - "Energy Steps in Our Food System" (#6-12)
- Worksheet - "How Much Processing?" (#6-12A)
- Worksheet - "Conservation Cuisine" (#6-12B)
- Pencils

ACTIVITY:

1. Begin by asking studetns to name the fossil fuels (coal, oil, and natural gas). State that these fuels are used for heating and to produce electricity. Gasoline that powers cars and trucks comes from oil.

2. Explain that the energy from fossil fuels is needed in every step of the food system to: grow food, process it (processing usually includes applying heat or cold, combining ingredients, and packaging the products to

2. (Cont'd.)...

keep them clean, undamaged, and attractive to the buyer), transport it (trains, trucks and planes), store it, cook it, and dispose of any wastes (food waste and packaging waste).

3. State that because we are running out of fossil fuels, it has become necessary to conserve as much as possible. Mention that some food products take more energy to produce than others. One way we can save energy is to decrease our consumption of those foods that use the most energy.

4. Divide the class into 2 groups. Instruct each group to think about the production, marketing, and preparation of a frozen meat item like a roast beef T.V. dinner (just the meat part). Ask each group to list all the energy - using steps involved from "farm to table". (Each group should be equipped with pencil and paper). Allow 15-20 minutes for this.

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   #1. Energy is needed to produce chemical fertilizers and pesticides to grow grain to feed to the cows.

   #2. Energy is needed to run farm equipment (like tractors, combines, harvesters, etc.) for plowing planting, cultivating, and harvesting the grain to feed the cows.

   #3. It takes energy to feed the cows in a feedlot.

   #4. Gasoline is needed to transport the cattle to the stockyard and the slaughterhouse.

   #5. Energy is needed to kill the cattle in the slaughterhouse.

   #6. More gasoline is needed to transport dead cattle to the meat processing plant. Extra energy is needed to refrigerate the truck.

   #7. Energy is used to cut, trim, pre-cook, freeze and package the meat for the T.V. dinner.

   #8. More gasoline is needed to transport the T.V. dinner to the grocery store. Again, extra energy is needed to refrigerate the truck (the T.V. dinner has to stay frozen!).

   #9. The grocery store uses energy to keep the meat dinner frozen.

   #10. Your family car uses gasoline to take you (or your Mom or Dad) to the grocery store to buy the frozen T.V. dinner and also to take you back home again!

   #11. Energy is needed to store the meat in the freezer at home and cook in the oven later.

   #12. After you cook the T.V. dinner, there is energy used by the garbage truck to come and take away the empty package you threw out in the trash.

   * Conclude by emphasizing that many different energy consuming steps are involved to get a frozen meat dinner from the farm to the table!

7. Ask students what specific steps on their energy diagram would be involved in producing a frozen vegetable (for example, frozen carrots). Answer: Steps 1, 2, 6, 7, 8, 9, 10, 11, & 12. State that meat usually requires much more energy to produce and market than plant foods.

8. Ask the class what energy steps could be involved if they bought a fresh vegetable (for example, lettuce) in a supermarket? Again, have students consult their diagrams. Answer: Steps 1, 2, 6, 7 (the lettuce would only be cleaned and packaged in cellophane, not frozen), 8 (the truck would be for cool storage, not frozen storage),

8. (Cont'd.)...

9, 10, 11 (lettuce is stored in the refrigerator, not the freezer), and 12 (less packaging than for a frozen vegetable, however!).

9. Have students speculate as to the steps used if a vegetable was bought fresh from a local farmers say at a farmers' market? Answer: Steps 1, 2, 10, 11. A lot of energy is saved in transportation and processing!

10. State that a vegetable (for example, tomatoes) that are grown in a home garden and eaten right away would save the most energy of all. Only steps 1 and 2 would be involved.

11. Summarize by having the class list ways energy can be saved in the food system. Suggestions are:

- Decrease consumption of processed foods (frozen dinners, instant mixes - beverage, dessert, etc.).
- Avoid heavily packaged foods (especially those that have non-biodegradable or non-recyclable packaging, e.g. styrofoam).
- Prepare more food from scratch and buy fewer "convenience" foods.
- Eating more plant protein(dry beans, dry peas, peanut butter, etc) than animal protein.
  * A pound of meat requires about 4 times the energy to produce and market as a pound of vegetable protein.
- Buy from local farmers!
- Grow more food at home.

(An excellent reference on home gardening for students is U.S.D.A.'s 1979 Yearbook entitled, "What's Good To Eat?" and other Questions Kids Ask about Food).

12. Handout the worksheets "How Much Processing?" and "Conservation Cuisine". Allow students approximately 30 minutes or so to complete these (or assign worksheets as homework to be discussed the next day in class). Answers for "Conservation Cuisine" are: A) canned juice, B) home-baked bread, C) fresh fruit salad, D) Rice and Bean casserole, and E) apples bought from a local farmer.

13. (Optional) - Arrange for your class to visit a farmers' market.

ENERGY AND THE FOOD SYSTEM

The food system starts with the sun that gives energy to plant life. Farmers and ranchers use the sun's energy and oil, gas, electricity and natural gas - other forms of the sun - to produce crops. Trucks, trains and barges transport crops and livestock to markets where the goods are sold to processors. Processors change the crops and animal products into food that we buy at stores. Processing usually includes applying heat or cold, combining ingredients and packing the products to keep them undamaged, clean and more attractive to the buyer. Retail stores order the products from the processors and receive the products via trucks, train, and sometimes, planes. Retailers also store the items until they are sold. Then, we come into the picture - we buy the product, take it home and usually do some type of processing ourselves, like heating or cooling the item.

About 17 percent of the energy we use in the U.S. each year goes into growing, processing, distributing, storing and home preparation of food. But one fact to think about is that it takes eight times more energy to produce, process and transport food than the food energy (in calories) we get from eating the products.

In the past it took much less energy to produce food. Before 1900, all the farm work was done by animals and people. Farmers accounted for 90 percent of the population. When the internal combustion engine was invented, the farmer benefited more than any other worker. Energy prices were cheap and farmers could afford to buy more land and produce much more food than before. Today farmers comprise only four percent of the American population. Because of advanced machinery and fertilizers, one American farmer produces enough food and fiber for more than 50 people.

Farming is only the first part of the food system, using about 18 percent of the energy used in the food system. Food processing accounts for 33 percent of energy used. Processing methods vary in energy usage. The most energy intensive method is freezing. The least energy intensive is packing and shipping a fresh item that requires no refrigeration.

Canning takes less energy than freezing because of the electricity required to keep the frozen foods cold until the consumer can prepare them. Convenience foods

(OVER)

that have been dehydrated and combined with other ingredients require large amounts of energy to be produced.

Transportation of produce takes about 3 percent of the energy used in the food system. Transportation - a vital part of today's system - is needed to get raw materials to the processor to the consumer. Trucks have become the main form of transportation because of a well-developed highway system in this country and the convenient delivery of trucking. But trucks require more energy per ton of freight than trains or ships.

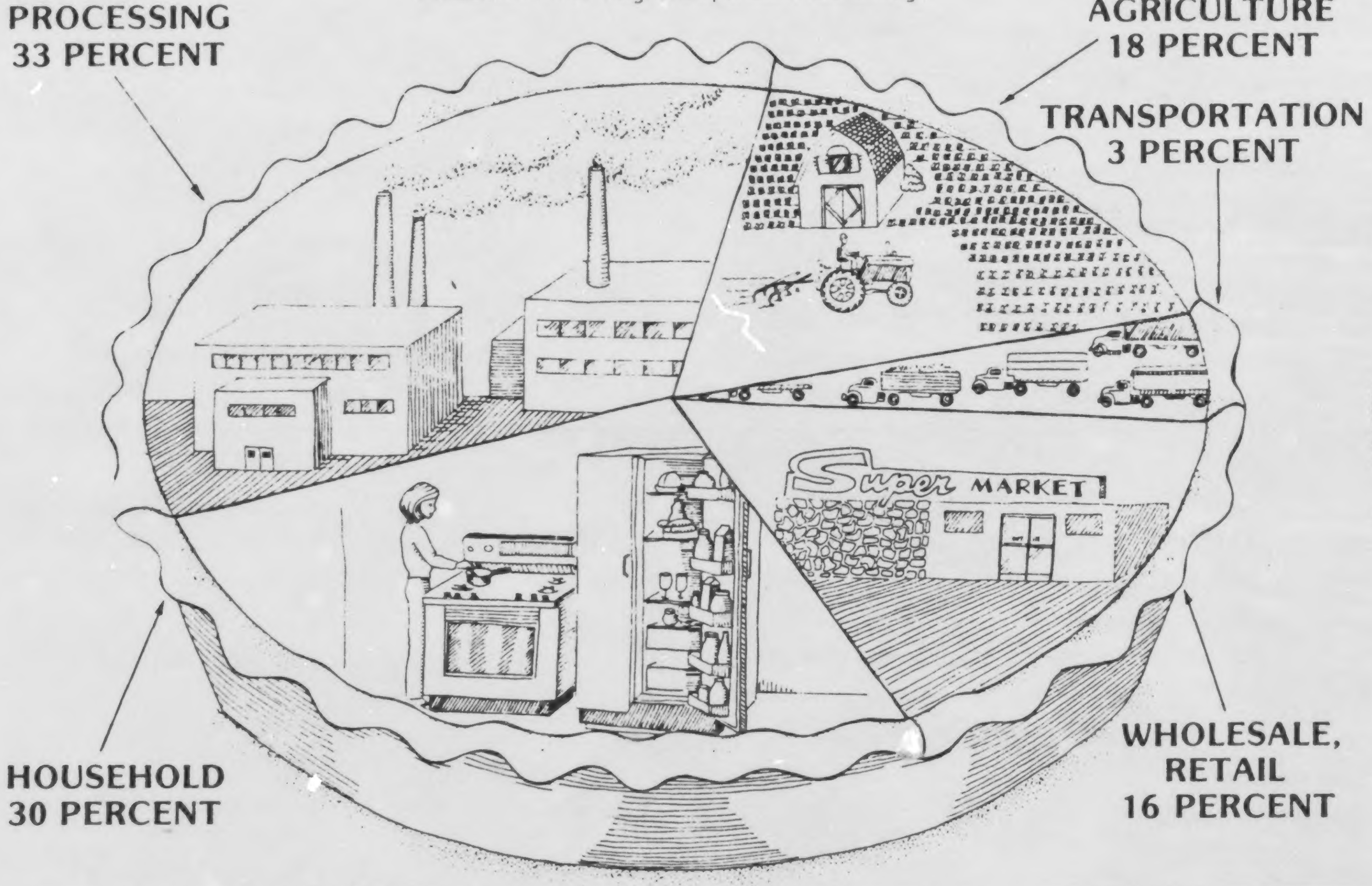
Wholesale and retail food outlets use 16 percent of the energy used in the food system. Electricity and natural gas keep buildings warm and food cold. Consumers prefer having wide selections of products from which to choose, which require larger stores. Open freezer units often battle against heating systems and are gradually being replaced by closed units. Lighting consumes a large amount of energy in stores.

Consumers are major users in the food system, with home preparation of food accounting for 30 percent of energy used. Electricity and natural gas are the major sources of energy for cooking and refrigeration. Hot water heaters, freezers, refrigerators and ranges require the most energy for operation. Heating appliances, such as toasters, hot plates, and blow dryers require more energy on the average than appliances that don't heat, like electric knives or mixers.

* From Montana Power Company's Food and Energy Unit, "Pie in the Sky," developed by Deborah Cunningham, 1979.

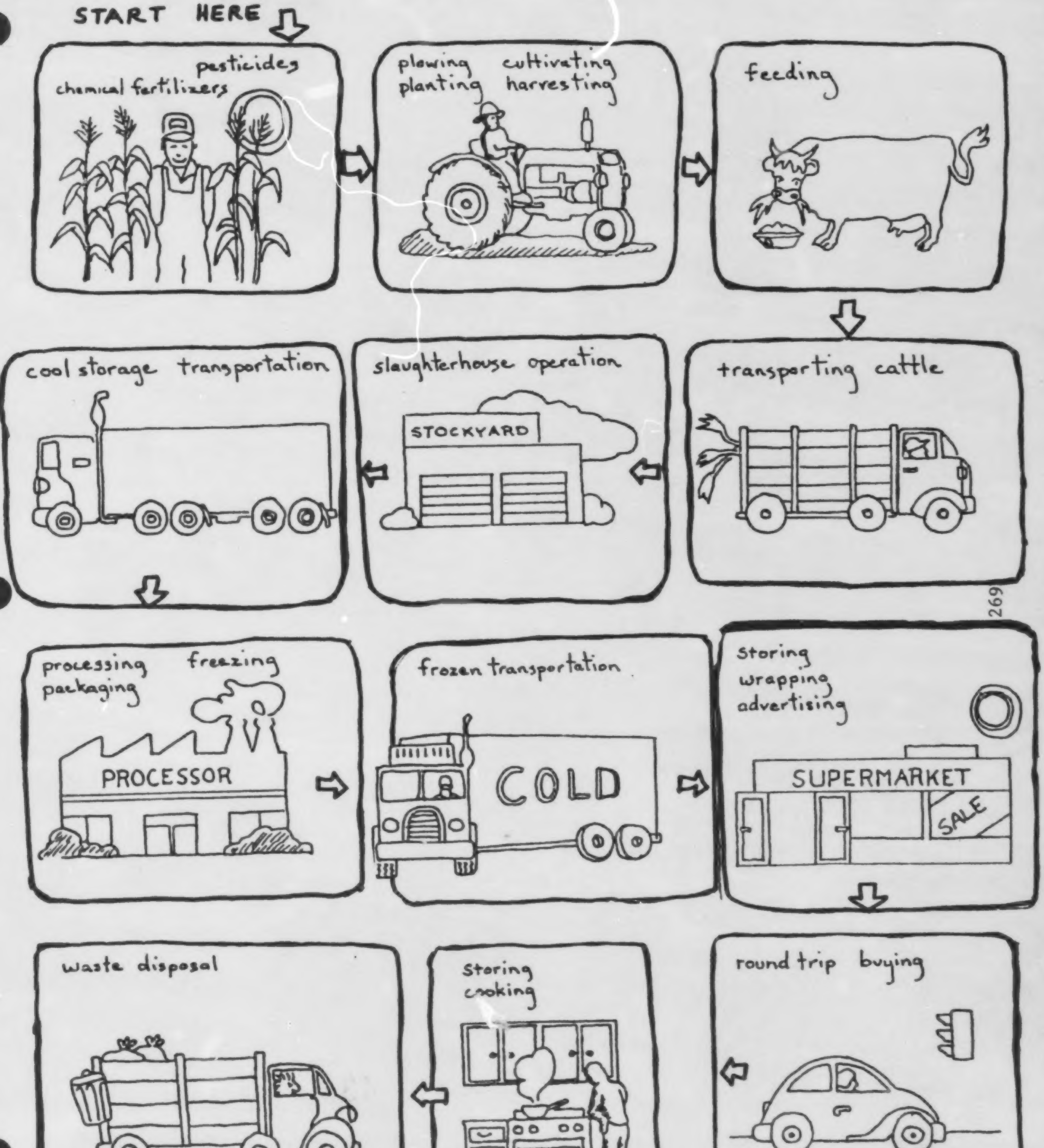
ENERGY AND OUR FOOD SYSTEM

17 percent of the Total U.S. Energy Supply Goes to Food Production Processing Transportation and Storage



From Montana Power Company's Food and Energy Unit, "Pie in the Sky", 1979.

ENERGY STEPS IN OUR FOOD SYSTEM


START HERE
chemical fertilizers
pesticides
plowing
planting
cultivating
harvesting
feeding
transporting cattle
slaughterhouse operation
STOCKYARD
cool storage
transportation
processing
packaging
freezing
PROCESSOR
frozen transportation
COLD
storing
wrapping
advertising
SUPERMARKET
SALE
round trip buying
storing
cooking
waste disposal
THE END.

Drawings from: Eclipse of the Blue Moon Foods, Tennessee NET Program.

Worksheet #6-12A

HOW MUCH PROCESSING?

DIRECTIONS: For each question below, identify which form of the food is least processed, moderately processed, and most processed, using the following system:

Least processed = L.P.
Moderately processed = Mod. P.
Most processed = M.P.

EXAMPLE:
Raw apple from your backyard - L.P.
Homemade applesauce - Mod. P.
Packaged, frozen apple pie - M.P.

1. mashed potatoes -
   potato chips -
   baked potato -

2. fresh tomato off the vine -
   canned tomato soup -
   canned tomatoes, whole -

3. frozen corn -
   tortilla chips (packaged) -
   corn-on-the-cob -

4. lowfat milk (gallon carton) -
   yogurt (plain, homemade) -
   fudge ripple ice cream -

5. raw, whole chicken -
   frozen chicken pot pie -
   canned chunk chicken -

Worksheet #6-12B

Conservation Cuisine

Menu

DIRECTIONS: Check one item from each course below that saves the most energy.

APPETIZER

______ Canned tomato juice

______ Frozen grapefruit juice

BREAD & ROLLS

______ Home-baked whole wheat bread

______ Store-bought wheat bread in a plastic wrapper

SALAD

______ Fresh fruit salad (made from locally-grown fruits)

______ Canned fruit cocktail

MAIN DISH

______ Roast beef

______ Rice & bean casserole

DESSERT

______ Apples bought from a local farmer

______ Apples bought in the grocery store shipped from the state of Washington

BEVERAGE

______ Water

______ Bottled soda pop

*Adapted from an activity by Deborah Katz & Mary Goodwin from FOOD: WHERE NUTRITION, POLITICS AND CULTURE MEET.

GENERALIZATION

When consuming a vegetarian diet, care must be taken to correctly match, or complement, proteins in foods eaten to maximize the efficiency with which the protein is used by the body.

TEACHER'S NOTES

(See second following page)

TITLE: "Cupid Cookery"

Lesson #6-13

OBJECTIVES:

The student will:

- Review protein and amino acids
- State that the human body can make all but 8 of the 20 different amino acids used to make our body proteins.
- State that the 8 amino acids that the body cannot make should be eaten at the same meal to allow for proper body growth.
- Define and give examples of "high quality" protein foods.
- Define and give examples of "low quality" protein foods.
- Describe how 2 or more low quality protein foods can be combined to give a high quality protein food.

NOTE: Prerequisite knowledge of protein functions and sources desirable.

MATERIALS:

- Handout - "The Amino Acid All Pro(tein) Team!" (#6-13A)
- Handout - "Cupid Cookery" (#6-13B)
- Worksheet - "Pair 'em up!" (#6-13)
- 32- 5" X 7" index cards
- Scissors, glue

ACTIVITY: (See next page)

ACTIVITY:

1. Begin by reviewing protein - sources and functions. Emphasize that protein's main roles in the body are to build tissues (such as muscle, skin, hair, nails, blood, etc.) and repair tissues that have been damaged in some way (cuts, scrapes, bruises, etc.)

2. Ask students to name the "building blocks" of protein (Ans. amino acids). Pass out copies of the handout entitled, "The Amino Acid All-Pro(tein) Team!" Go over the handout in class. Give examples of legumes, grains, seeds and nuts if these are new to your students:

Legumes:	Kidney beans, pinto beans, navy beans, soybeans, peanuts & peanut butter, blackeyed peas, split peas, garbanzo beans, lentils.
Grains:	Wheat, rye, oats, barley, cornmeal, bulgur.
Seeds:	Sesame seeds, sunflower seeds, pumpkin seeds.
Nuts:	Walnuts, pecans, almonds, pistachio nuts, brazil nuts, cashews.

3. Emphasize that certain plant foods can be combined with each other or with dairy products to make high quality proteins. Plant foods can be matched with those foods that contain the particular essential amino acids they are deficient in to make a complete set. Mention that when 2 low quality protein foods are combined to increase their quality, they are called complementary protein foods. *It is important to know that complementary protein foods must be eaten at the same time; either in one dish or separately at the same meal.

4. Distribute copies of the second handout, "Cupid Cookery". Go over this in class and re-emphasize the importance of eating complementary proteins at the same time (in the same meal) to guarantee that all the 8 essential amino acids will be eaten in the right amounts.

5. Tell the class to take a close look at the relationships enclosed in the box on the "Cupid Cookery" handout. They will need to know this information in order to play the following game - "Protein Partners".

6. *Write each of the following 32 protein foods on a separate index card or piece of paper:

Milk, cheddar cheese, yogurt, cottage cheese.

Cereal, noodles, whole wheat bread, crackers, brown rice, cornbread, corn tortillas, barley, rye bread, pumpernickel bagel.

Lentils, kidney beans, pinto beans, soybeans, navy beans, peanut butter, blackeyed peas, split peas, garbanzo beans, peanuts.

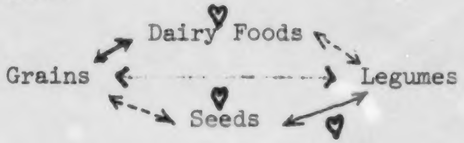
Sesame seeds, sunflower seeds, pumpkin seeds.

Walnuts, almonds, pistachio nuts, Brazil nuts, cashews.

*Note: This can be done ahead of time.

7. Place the cards in a paper bag, box, or coffee can. Instruct each student to take a card.

8. Write the complementary protein relationship on the chalkboard:



9. Explain to students that after you give the signal, they should find a complementary protein partner within 30 seconds - 1 minute. After time is called, ask each pair of protein partners to name their protein combination. A few possible combinations include:

(See next page)

TEACHERS NOTES:

Protein is a very important nutrient for growing bodies. Dietary protein supplies the "raw materials" for tissue synthesis and repair, as well as for body enzymes and hormones. The RDA for protein in children aged 11-14 years is 46 grams/day.

What is important to realize is that the actual raw materials needed by the body are not proteins per se, but rather their amino acid components. For protein synthesis to occur in our bodies, all of the amino acids needed to "build" a particular protein must be present together and in the correct proportions. High quality protein foods are foods which supply all of the 8 essential amino acids in the proper proportions (amounts). Animal proteins such as eggs, milk, cheese, fish, meat and poultry are high quality protein foods.

Almost all plant proteins are of low protein quality. Cereals, grains, legumes, nuts and seeds all have insufficient amounts of at least one of the 8 essential amino acids. However, plant proteins can provide all of the essential amino acids if they are mixed together in a way to counterbalance their different amino acid deficiencies. This process is termed "protein complementation". For example, cereals, grains, nuts and seeds all have insufficient amounts of one essential amino acid, lysine. Legumes on the other hand, have sufficient amounts of lysine, but do not contain adequate amounts of other essential amino acids that are supplied by cereals, grains, nuts and seeds.

ACTIVITY (Cont'd.)... (#9 cont'd.)

- - Possible Protein Combinations - -

milk & cereal
cheddar cheese & noodles
rice & kidney beans
cornbread & navy beans
yogurt & crackers
sunflower seeds & peanuts
sesame seeds & garbanzo beans
rye bread & split peas
corn tortillas & pinto beans
barley & soybeans
pumpernickle bagel & peanut butter
cottage cheese & whole wheat bread
cashews & peanuts

*Repeat the games as often as you like (or have time), requesting that students keep the same cards but find new protein partners each time around. (This activity should serve to expose students to the wide variety of plant protein /dairy combinations.)

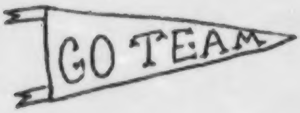
*Emphasize to students that complementary protein foods do not necessarily have to be eaten together in the same dish - just the same meal.

10. Pass out copies of the worksheet, "Pair 'em up!" This can be completed during classtime or assigned as homework to be discussed the next day.

Handout #6-13A

THE AMINO ACID

"ALL - PRO(TEIN) TEAM!"



INTRODUCING THE PROTEIN TEAM PLAYERS:

There are 20 amino acids that make-up the protein team. Your body is pretty neat because you can make all but 8 of these amino acid players. These 8 amino acids you can't make yourself are called "essential amino acids" and must be "recruited" from the foods you eat. Without these 8 amino acids playing together at the same meal, the protein you eat can't "tackle" its "goals" in your body.

YOU KEEP SCORE:

Write down 2 ways protein "scores points" in your body:

1) ______________________________

2) ______________________________

A QUALITY TEAM:

HIGH QUALITY

Animal protein foods, like meat, fish, eggs, milk and cheese contain all 8 of the essential amino acids. They are called high quality protein foods.

Plant protein foods, such as legumes, cereals and grains, nuts and seeds contain protein but do not provide enough of the 8 essential amino acids. They are called low quality protein foods.

LOW QUALITY

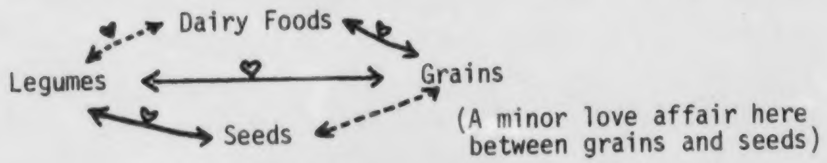
BUT ... If you TEAM-UP certain plant proteins together (or with milk or cheese), you can make a perfect protein match that has all the 8 essential amino acids in the right amounts, which means a sure victory for your body!

"Together we can be #1!"

Handout #6-13B

CUPID COOKERY

(Match-up the amino acids to create "hearty" dishes!)



(A minor love affair here between grains and seeds)

Some examples of high quality protein combination dishes are:

GRAINS AND DAIRY PRODUCTS

Pizza (Wheat crust & cheese)
Cereal and milk
Macaroni and cheese
Wheat bread and cheese
Crackers and cheese
Rice pudding (rice and milk)

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GRAINS AND LEGUMES

Corn tortilla and pinto beans
Corn bread and split pea soup
Rice and beans
Whole wheat bread and peanut butter
Barley and bean casserole

LEGUMES AND DAIRY PRODUCTS

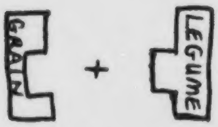
Cheese sauce for garbanzo beans
Pinto beans and cheddar cheese
Garbanzo beans and yogurt

LEGUMES AND SEEDS

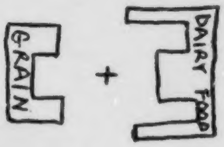
Peanuts and sunflower seeds
Hummus (a Middle Eastern dish made from sesame seeds and garbanzo beans)

PAIR 'EM UP!

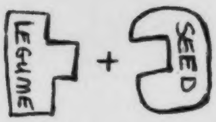
Match a Grain and a Legume to get a High Quality Protein:


GRAIN
+
LEGUME

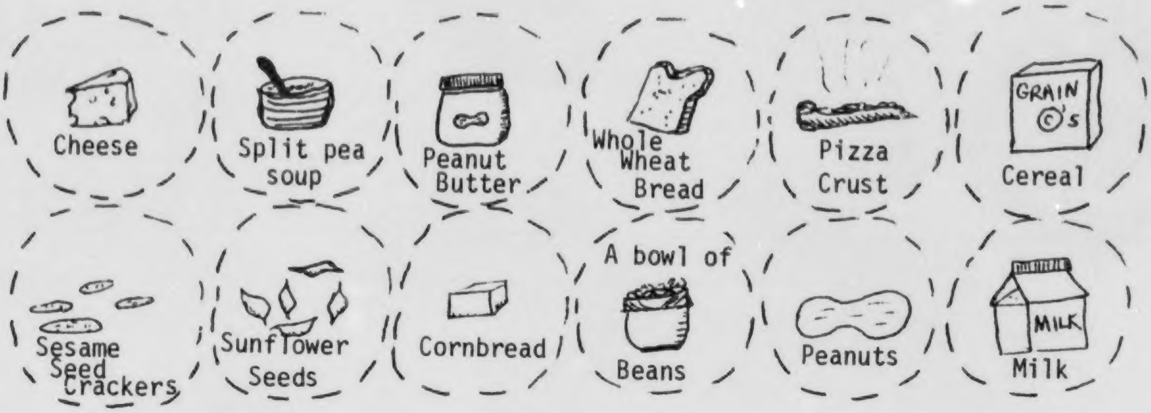
Match a Grain and a Dairy Food to get a High Quality Protein:

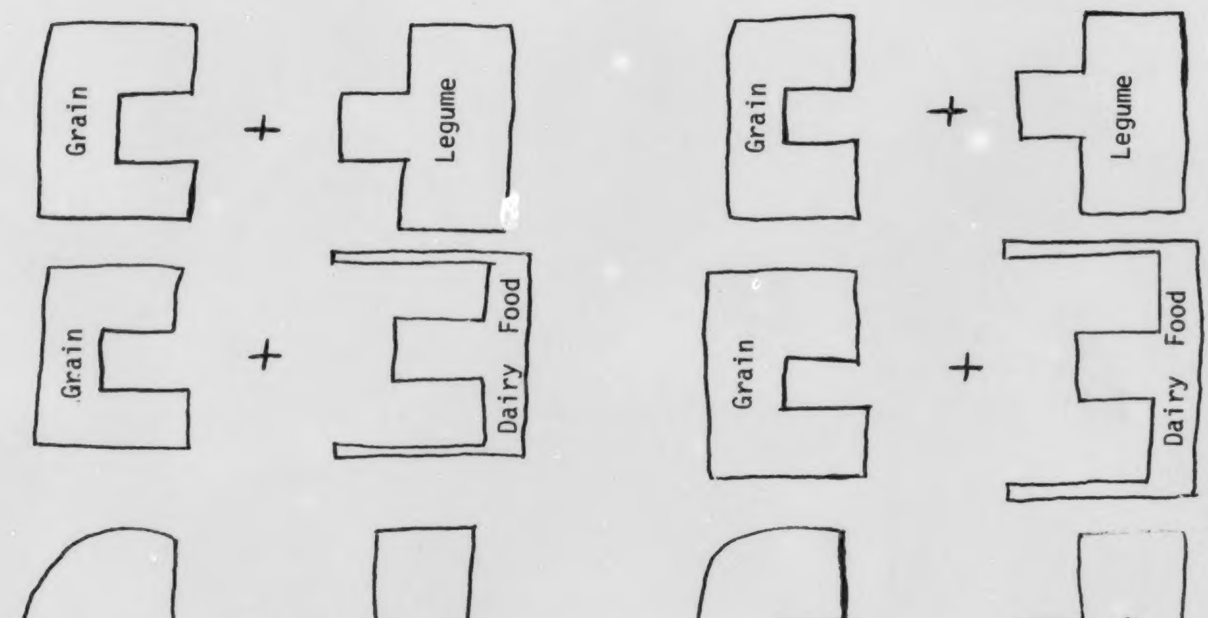

GRAIN
+
DAIRY FOOD

Match a Legume and a Seed to get a High Quality Protein:


LEGUME
+
SEED

Directions: Cut-out the circles below and paste each on its correct puzzle piece.


Cheese
Split pea soup
Peanut Butter
Whole Wheat Bread
Pizza Crust
GRAIN O's
Cereal
Sesame Seed Crackers
Sunflower Seeds
Cornbread
A bowl of Beans
Peanuts
MILK
Milk


Grain
+
Legume
Grain
+
Legume
Grain
+
Dairy Food
Grain
+
Dairy Food
Seed
+
Legume
Seed
+
Legume

*Adapted from a worksheet from The Doofus Stories, Learning for Life Project, Newton, Mass.

GENERALIZATION

Food is not evenly distributed among the world's people, resulting in malnutrition in many regions of the world. There are steps people can take to learn more about hunger in the world.

RESOURCES:

Lester Brown, By Bread Alone (New York: Praeger Publishers, 1974)

OXFAM America - This is a non-profit organization which offers a variety of publications, films and slide shows for purchase or rental through its clearing-house of educational materials.

Address: OXFAM America
302 Columbia Avenue
Boston, MA 02116

TITLE: "A Hungry World" Lesson #6-14

OBJECTIVES:

The student will:

- State that hunger is a major health problem for approximately a half billion people in the world.
- Identify geographic areas in the world where hungry people exist.
- Become aware of obstacles to an adequate food supply in developing nations.
- Prepare an Indian/ Pakistani food.

MATERIALS:

- Globe or world map.
- Handout - "Hunger Fact Sheet" (#6-14A)
- Board game - "Feast or Famine" (Developed by the Wisconsin NET program). *A copy of the game plus a list of materials and complete directions for assembly and play are included in the Appendix section of this package.
- Handout - "World Hunger: What You Can Do" (#6-14B)
- Recipe - "PURI" (#6-14)

ACTIVITY:

1. Begin by stating that hunger is a major health problem for about a half billion people in the world today.
2. Ask students to name countries/ regions of the world where hunger exists. As students name various regions or countries, point these out on the globe or a world map. (You may want to permanently identify these areas by placing stars, circles, or other colorful stickers with adhesive backs which can be peeled off later - on the countries afflicted

2. (Cont'd.)...

by hunger). Note that most of the world's hungry live in India, Southeast Asia (including Cambodia), Africa (sub-Saharan), and areas of the Middle East and Latin America (e.g. Peru, Honduras, Costa Rica, El Salvador).

3. Ask students to speculate as to some of the causes of world hunger. Write student responses on the chalkboard. State that hunger usually results from catastrophes, such as famines, earthquakes, floods, disease epidemics, or wars. Mention that hunger can also exist as a chronic, long-term condition as the result of a country not being able to grow enough food to feed its people or because food is too expensive.

4. Pass out copies of the handout entitled, "Hunger Fact Sheet". Go over the sheet in class. Encourage students to share this information with their friends and families.

5. Divide the class into groups of 6. Distribute a copy of the game "Feast or Famine" to each group. (Either you or students can assemble the games ahead of time. *You will need to make additional copies of the game board, playing cards and food cards so that each group of students will have all the necessary playing materials.)

6. Go over the playing directions for the game with your class. Allow approximately 30-45 minutes for actual playing time in class.

7. After students have completed the game, have them discuss the following questions:
    - Was this a fair game? Why or why not?
    - Is food really distributed this way in the world? Do all people receive the same amount of food?
    - What are the reasons for unequal distribution of food?

7. (Cont'd.)...
    - What can be done about this?
    - Can our class do anything about this?

8. Pass out copies of "World Hunger: What You Can Do". Go over these suggestions in class.

9. (Optional) Have students prepare and sample an Indian/Pakistani food, "Puri" (see recipe). You may want to write a native of India or Pakistan to discuss his/her country's hunger problems with your class.

Handout #6-14A

# HUNGER FACT SHEET

DID YOU KNOW . . .

The present world population is over 4 billion. Some scientists believe the world population will be over 6 billion by the year 2000!

DID YOU KNOW . . .

About one-fourth of the world's population is hungry or under-nourished.

DID YOU KNOW . . .

Twelve to thirteen million small children die each year, most from malnutrition-associated causes.

DID YOU KNOW . . .

Approximately one out of three children born into the world will die before reaching the age of five, most from malnutrition-related causes.

DID YOU KNOW . . .

Between 50,000 and 100,000 children throughout the world become blind every year due to vitamin A deficiency.

DID YOU KNOW . . .

Most of the hungry people in this world live in India, Southeast Asia, Africa (south of the Sahara desert), and areas of the Middle East and Central and South America.

Handout #6-14B

WORLD HUNGER

WHAT YOU CAN DO!

AS A STUDENT YOU CAN:

1. Educate yourself.
   - Understand nutrition
   - Be aware of non-renewable resources
   - Read books, newspaper and magazine articles on hunger in the world.

2. Share information with your friends and family.

3. Make a personal commitment to reduce waste through recycling and conservation.

4. Reduce your personal energy (electricity, gasoline, etc.) use. Can you think of specific ways you can do this? Write them here:

   ____

   ____

   ____

5. Become aware of yourself as part of the larger family of man.

6. If given the chance, "narrow the gap" between yourself and others. Visit foreign countries, learn other languages, etc.

7. Simplify your eating habits.
   - Eat "low" on the food chain.
   - Eat more whole grains, legumes, fresh fruits and vegetables.
   - Eat less meat.

8. Learn how to grow some of your own food.
   - Grow a small vegetable garden.

Recipe #6-14

EQUIPMENT/SUPPLIES:

Measuring spoons
Measuring cups
Rolling pin
Biscuit cutters
Slotted spoon or spatula
Small, deep saucepan
Range or hot plate
Absorbent paper
Paper plates (small) - 1 per student
Napkins

NAME OF RECIPE: "PURI"

INGREDIENTS:

1 1/4 c. whole wheat flour
1/2 t. salt
3/4 c. yogurt (plain)
3/4 c. soft butter or margarine
vegetable oil for frying
honey

PROCEDURE:

1. Mix flour, salt, yogurt, and butter together.
2. Roll dough out on floured surface about 1/8" thick and cut with biscuit cutters. (Each student can cut out his/her own dough.)
3. Pour oil 1" deep in saucepan.
4. Heat oil until a small piece of dough sizzles quickly. Lower each piece of dough into oil with a slotted spoon or spatula. Hold dough under the oil (the puri rise as soon as they begin to puff). They should puff and turn golden in just a few seconds.
5. Drain puri on absorbent paper.
6. Serve warm--plain, or with honey.

YIELD: 2-dozen small puffs (puri)

GENERALIZATION

Nutrition and exercise are both important for overall fitness.

TEACHER'S NOTES

*Resource on Dietary Guidelines:

Nutrition and Your Health
Dietary Guidelines for Americans;
Home and Garden Bulletin No. 232

To obtain copies write to:

Superintendent of Documents
U.S. Government Printing Office
Washington, DC 20402

*Resources on Physical Fitness (& Health Promotion in general):

1. Bodyworks - The Kids' Guide to Food and Physical Fitness; by C. Bershad & D. Bernick, 1979.
2. Fitness Focus - A Nutrition and Physical Fitness Education Unit from Kellogg Company.

NOTE: This lesson is actually 2-lessons - in-1. It is recommended that you teach each component (Fitness and the Dietary Guidelines) on a different day.

TITLE: "Food and Fitness"

Lesson #6-15

OBJECTIVES:

The student will:

- Distinguish between aerobic & anaerobic activities.
- List 4 aerobic exercises.
- State the pulse rate (exercise) "target zone", for most 10-12 year olds.
- Become familiar with the dietary guidelines for Americans.
- Revise a single day's menu to comply with the dietary guidelines.

MATERIALS:

- Handout: "What Happens When You Run for Fun?" (#6-15A)
- Worksheet: "My Aerobic Activity Plan" (#6-15A)
- Handout: "Good-For-You Guidelines" (#6-15B)
- Worksheet: "Shaping-Up Sally" (#6-15B)

ACTIVITY:

FITNESS (Day 1)

1. Begin by asking students to name the 2 most important ingredients for physical fitness. (Good Nutrition and Exercise)
2. Go around the room and ask each student to name his/her favorite form of exercise (i.e. the exercise he/she participates in most often). Write responses on the chalkboard (make a tally). What are the most popular exercises?
3. State that some exercises develop heart and lung endurance if performed 3 or 4 times a week. These exercises include:

3. (Cont'd.)...

Swimming, jogging, fast walking, biking, and cross-country skiing. These help keep a person fit by making the heart muscles stronger.

4. Distribute copies of the handout entitled, "What Happens When You Run for Fun?" This handout serves to point out some of the physiological changes that occur during exercise. Go over the handout aloud. Ask students if they are surprised at any of the bodily changes that occur during strenuous exercise.

5. Ask the class if they know the term for exercises that build-up heart and lung endurance. State that such exercises (swimming, jogging, etc.) are AEROBIC. (Write this term on the chalkboard). Explain aerobic exercise using the following analogy:

   - "Think of how a camera flashbulb compares to a lamp you plug into a wall socket. One gives you extra-bright light for a quick moment and fizzles out; the other uses electricity to glow steadily for a longer period of time.
   - State that the human body also provides 2 different kinds of energy - one for the activities you do in a flash (like the 50 yard dash), and the other for activities that keep you moving steadily for 5 minutes or more (like jogging or a long bike ride). The dash is over so quickly that it doesn't require much energy. You can rely on a small amount of energy that the muscles produce quickly without using any new supplies of oxygen. This is called anerobic energy (Write this term on the chalkboard.) "An" means without and "aerobic" means using oxygen. Tell the class that because this supply of energy is limited, a person can rely on his/her anaerobic system only for activities that take less than a few minutes to perform. After that, the body must begin to use longer term energy used for jogging, swimming, etc. called aerobic energy.

6. Re-emphasize that aerobic activities are exercises and sports that usually take 15 minutes or more. They keep a person breathing deeply so more oxygen is brought in for moving body muscles to use for aerobic energy. Swimming, jogging, fast walking, or biking (for 15-30 minutes at least) 3-4 times a week helps keep a person fit by increasing heart and lung endurance.

7. Ask students if they can guess how a person can know when an exercise is aerobic. State that exercise scientists have determined ways to measure the very highest rate at which our heart can beat. This rate is called the maximum heart rate and is different for each person - depending on age, size, and how physically fit (or un-fit) s/he is. State that for most 10-12 year-olds, the maximum heart rate is about 200 beats per minute (write this on the chalkboard).

8. Tell the class that a person is really exercising if his/her heart or pulse rate is up to about 3/4 of maximum. This is a person's target zone for an aerobic exercise program. State that for most 10-12 year olds, the target zone is about 140-170 beats per minute (write this on the chalkboard). Mention that after a person jogs, swims, or bikes at the proper target zone a few times, s/he won't need to take a pulse rate to know how it feels to move at that rate.

9. Pass out copies of the worksheet, "My Aerobic Activity Plan." Go over the worksheet in class. Allow students to complete the "contract" in class and tell them to take the worksheet home as a reminder to engage in an aerobic activity (or activities) for 15-20 minutes, at least 3 or 4 times a week.

10. (Optional) Class Activity: "Add up the Paces and Travel to Places!" Have your class think of a place they'd like to visit, like a museum, an amusement park, or a nearby city. Instruct students to use a map to figure out how many miles it is from where the

10. (Cont'd.)...

school is located. Have each student measure some routes s/he can jog, fast-walk, or bike a few times a week (e.g. to and from school, to friend's house, etc.). For one month, have students try to cover as much distance as they can aerobically on their routes while keeping a travel log and marking off the quarter or half miles toward the class' goal as they are covered. At the end of each week for one month, have students total their mileage as a group. How far did they go? Did the class meet its original destination?

DIETARY GUIDELINES (Day 2):

1. Begin by stating that two U.S. government groups (U.S. Department of Agriculture and the U.S. Department of Health & Human Services) have studied the eating habits of Americans to see how well we do at choosing the proper foods for our health and well-being. These 2 groups have recommended several dietary suggestions or guidelines. Hand out copies of "Good For You Guidelines". Six of these dietary guidelines encourage us to:

    1. Eat a variety of foods.
    2. Maintain ideal body weight.
    3. Avoid too much fat.
    4. Eat foods with enough fiber.
    5. Avoid too much sugar.
    6. Avoid too much salt (sodium).

2. Write 3 column headings on the chalkboard:

2. (Cont'd.)...

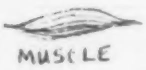
Foods High in Sugar	Foods High in Fat	Foods High in Salt
(Candies & Gum)	(Fried foods)	(Canned soups)
(Cakes, Pies, and Cookies)	(Potato chips)	(Instant soups)
(Jams)	(Cakes, Pies, and Donuts)	(T.V. dinners
(Jellies)	(Salad dressings)	(Salty snacks
(Soda Pop)		(Canned vegetables)
(Instant fruit drinks)		(Pickles)
(Canned Fruit Punch)		
Read the Labels	*Read the Labels*	*Read the Labels*

Solicit student input on what foods or kinds of food belong in each category. A few suggestions are printed above in parentheses. Remind students that reading food labels (especially ingredient lists) is the best way of determining just what goes into their mouths!

3. Distribute copies of the worksheet, "Shaping-Up Sally". Go over the directions in class and allow students approximately 15-20 minutes to complete the worksheet. Go over their suggestions and recommendations. (Consult your copy of the worksheet for specific recommendations. Encourage students to examine their own eating-and-exercise lifestyles and look for ways to improve them.)

WHAT HAPPENS WHEN YOU RUN FOR FUN???

Imagine yourself jogging around a track at a comfortable place. What's happening inside you during your "fun run?"



Your arm, shoulder, and leg MUSCLES are contracting and relaxing quickly, burning up fuel energy (from the food you eat) as they go.

Your HEART muscle (yes - - your ticker is a muscle!) is squeezing and pumping blood and nutrients to all parts of your body at about 140-170 beats per minute. Up to 8 times more blood is being pumped each minute than when you are resting.

More BLOOD is being sent to the ARMS AND LEGS where it is needed most Less of it is flowing to the digestive organs, like the stomach and intestines.

Your RIB CAGE is expanding and contracting over 40 times a minute, as your LUNGS breath in over 50 quarts of air! You are breathing rhythmically and deeply as you run.

Most physically-fit 11 year-olds could keep up this slow and steady jogging pace for 15-20 minutes at a time. Can you?

MY AEROBIC ACTIVITY PLAN

There are many activities that can be aerobic if you move continuously so that your pulse-rate reaches your target zone which is _______________ beats per minute for most 10-12 year-olds. Some aerobic activities are: basketball, biking, disco-dancing (boogie!), folk and square dancing, hiking, jogging, skating, snow-shoeing, cross-country skiing, swimming (the crawl - not the dog-paddle!), tag games, and brisk walking. See any favorites?

Now, you ask, how can you build more aerobic activity into your lifestyle? Sometimes you can find a fitness group to join. Does your school have a morning running or an after-school sports program? Do you have a friend (or two) who would also like to exercise with you? How about someone in your family? (You can always go for a "dog-jog" with your family "Fido"!)

Marathon Mutt

Find a calender and make a plan for yourself for the coming month. Set aside 30 minutes, 3 days a week, to include your warm-ups, your aerobic activity and cooling down. Some days you may want to have two 15-minute sessions instead of one in the morning and one in the afternoon. Leave at least one rest day between every 2 exercise days. Choose a few different activities to do or stick with one you really love (♡) to do (maybe your "heart" is set on jogging!) One way you can hold yourself to your activity plan is to write yourself a contract (a formal agreement) and put it up where you can see it every day as a reminder:

*Example: MY AEROBIC ACTIVITY PLAN "CONTRACT"

I, ____________________, promise myself to complete _____ weeks of aerobic training, at least 3 times a week, from _______________ until _______________.
The aerobic activities I plan to do are the following:

____

____

____

*Stick with your contract and you'll WITNESS your body's FITNESS! (Soon!)

"GOOD-FOR-YOU" GUIDELINES:

(This time it's Uncle Sam telling you what you should eat - not your mother!)

INTRODUCING THE 6 DIETARY GUIDELINES FOR AMERICANS:

★ Eat a variety of foods.

★ Maintain ideal weight.

★ Avoid too much fat.

★ Eat foods with adequate fiber.

★ Avoid too much sodium (salt).

★ Avoid too much sugar.

What do you think of these?

Worksheet #6-15B

Shaping Up Sally

DIRECTIONS: Read the following story and answer the questions below:

Sally has just moved into town with her family. She was assigned to your classroom in your school and is just getting to know people and make new friends. The first thing Sally notices about your class is how "into" fitness and good nutrition everyone seems to be! She wants to join the movement and asks you to answer the following questions for her:

1. Sally wants to begin an aerobic exercise program. The activities/exercise she likes are: tennis, biking, softball, and jogging. Can you tell her which of these are aerobic? Write them here:

   ______________________________.

2. Sally now asks you to tell her how often she should do her aerobic activities and for how long each time. Your answer is:

   ______________________________.

3. Below is a sample of what Sally normally eats for one day. Using the dietary guidelines you've just learned, write down 5 specific changes Sally could make in her eating habits to make them healthier.

Breakfast	Lunch	Snack	Supper
1 c. Wheat flakes with 2 Tbsps. sugar	Bologna Sandwich on white bread	Apple	1 Fried Pork Chop
1/2 c. orange juice	Fruit Punch		1/2 c. corn
1 c. whole milk	Potato Chips		1/2 c. mashed potatoes with 2 Tbsps. butter
	Hostess Cupcake		1 piece frosted chocolate cake
			1 c. whole milk

*Your five suggestions are:

1. ______________________________.
2. ______________________________.
3. ______________________________.
4. ______________________________.
5. ______________________________.

Teacher's Guide to . . .

"SHAPING-UP SALLY"

Below are answers for questions 1-3 of the worksheet.

1. Aerobic exercises include: biking and jogging.

2. Aerobic activities should be performed 3-4 times a week for 15-20 minutes each time.

3. *Suggestions for improving Sally's menu include:

   Breakfast

   - Decrease amount of sugar added to cereal.
   - Change whole milk to low-fat (2%) milk on cereal.

   Lunch

   - Substitute chicken or tuna for bologna (high fat, high sodium content).
   - Use whole wheat bread instead of white.
   - Change fruit punch (high in sugar) to unsweetened fruit juice.
   - Substitute raw vegetables (e.g. carrot/celery sticks) for salty, high-fat potato chips.
   - Substitute fresh fruits for Hostess cupcake for dessert.

   Snack

   - Okay.

   Supper

   - Change fried pork chop to baked.
   - Decrease amount of butter on mashed potatoes.
   - Substitute fresh or canned (unsweetened) fruit for frosted chocolate cake.
   - Change whole milk to low-fat (2%) milk.

*NOTE: Students can list any 5 of the above suggestions on their worksheets.

TEACHER'S NOTES: (To accompany the nutrition awareness inventory entitled, "What is your "NUTRI-SCORE?").

This eating habits self-check was designed for 6th grade students. It is suggested that students complete the inventory towards the end of the school year - - after they have been exposed to concepts introduced in the nutrition-in-health lessons designed specificially for grade 6.

As you distribute copies of "What is Your NUTRI-SCORE?", explain to students that this eating habits self-check is for their benefit only. Emphasize that it will not be graded, critiqued, or shared with other classmates. Students are to respond to each statement on the inventory honestly in order to become more aware of their own personal eating habits.

WHAT IS YOUR NUTRI-SCORE

?

DIRECTIONS: Read each of the following statements. Decide if the statement is true or false for you. Then check (✓) the correct space after each statement. (Instructions for determining your personal NUTRI-SCORE follow this questionnaire).

	TRUE	FALSE
1. I always eat something in the morning before I leave for school.	____	____
2. I brush my teeth after every meal, or at least "swish and rinse" my mouth with water after eating.	____	____
3. I avoid eating sticky, sweet foods such as caramels, toffee, etc.	____	____
4. I use a fluoride toothpaste.	____	____
5. I drink unsweetened fruit juices, milk and/or water instead of soft drinks (soda, punch or drink mixes) whenever possible.	____	____
6. I eat most of my meals with friends or my family.	____	____
7. I don't go out and buy a food just because I saw it advertised on T.V.	____	____
8. I try not to eat too fast.	____	____
9. I don't eat while watching T.V.	____	____

	TRUE	FALSE
10. I'm willing to try new and different foods.	____	____
11. I drink milk (or eat yogurt or cheese) every day to get enough calcium.	____	____
12. If I'm feeling bored or sad, I don't make myself feel better by eating something.	____	____
13. I try to eat a good source of vitamin A at least every other day. (Good sources of vitamin A are: carrots, sweet potatoes, acorn squash, pumpkin, spinach, etc.)	____	____
14. I balance my food intake with my physical activities so that I am neither overweight nor underweight.	____	____
15. I eat whole grains or fruits and vegetables every day to get enough fiber in my diet.	____	____
16. I don't drink coffee or tea.	____	____
17. I limit my consumption of caffeine-containing soft drinks (colas, Mountain Dew) to only 1 or 2 glasses a week.	____	____
18. Whenever possible, I read ingredient lists on food labels to estimate how much sugar is in the foods I eat.	____	____
19. I don't take vitamin pills unless my doctor has prescribed them for me.	____	____
20. The snacks I eat are of high nutrient density - - they provide nutrients as well as calories.	____	____
21. I don't drink alcoholic beverages.	____	____
22. I limit my intake of salty snack foods (such as potato chips, corn chips, pretzels, salted nuts, etc.) to once a week or less.	____	____

	TRUE	FALSE
23. I don't add salt to my foods once they are on my plate.	____	____
24. I eat at fast-food restaurants about once a week or less.	____	____
25. I exercise aerobically at least 3 times a week. (Aerobic exercises include: jogging, biking, swimming, walking fast, etc.)	____	____

To determine your NUTRI-SCORE, see the next page!

DIRECTIONS ON HOW TO DETERMINE YOUR "NUTRI-SCORE":

Count up the number of statements you answered "True".

This number equals ☐ and represents your NUTRI-SCORE!

NUTRI-SCORE CARD

If your score was:

20-25	EXCELLENT (Wow!, bravo, right-on, etc). You are the 🍎 of a nutritionist's eye! Keep up the good (food) work!
14-19	GOOD (gettin' there, pretty neat, etc.). Make just a few minor menu changes and you, too, can become an excellent eater in no time!
8-13	FAIR (so-so, not so hot, etc.). You need to "fortify" your food habits! Make some changes today, okay?
≤ 7	YUK (and double-yuk!). Hey - are you existing in a "vegetable state"? You can do better! Go over your questionnaire & think about making some improvements. Remember - your body is yours for a lifetime. Love it by putting your ♡ into your food habits!

APPENDIX

B2630

food resources
and
human nutrition

NUTRIENTS–Sources and Functions

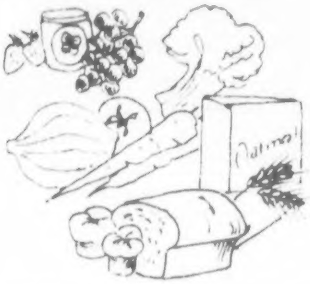
Jane Voichick and Mary Lavender

This publication reviews some of the major nutrients and the foods that supply them. No single food supplies the proper amounts of all the key nutrients, so it is important to include a wide variety of foods in the diet. Information about these nutrients can also be found on nutrition labels.

MACRO-NUTRIENTS

Proteins, fats and carbohydrates are required by the body in relatively large amounts and are called **macro**nutrients. These three nutrients have specific functions and also provide the body with energy. Food energy is essential for normal body functions such as breathing, blood circulation, maintaining body temperature and physical activities.

CARBOHYDRATES



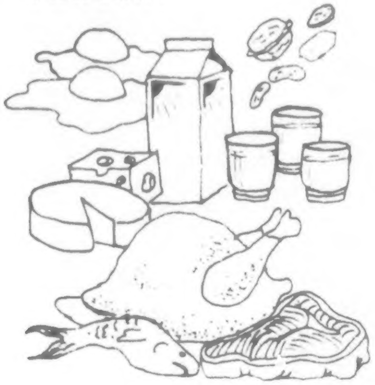
Use in the Body

1. Carbohydrates supply energy for body processes and physical activities. Carbohydrates include simple sugars and more complex starches.
2. Carbohydrates help the body use fats efficiently and thus save protein for special uses.
3. Fiber or roughage and indigestible forms of carbohydrates provide needed bulk in the digestive tract and help elimination.

Sources

Starches and fiber: Fruits and vegetables, whole grains
Sugars: Fruits, honey, table sugar, molasses, candies

PROTEIN



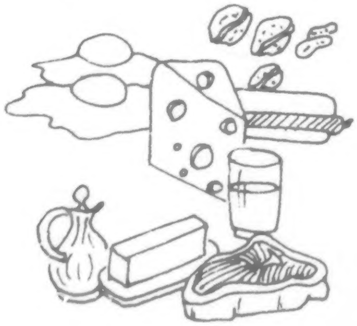
Use in the Body

1. Some amino acids used to build body proteins cannot be made by the body itself. These essential amino acids must be supplied by food.
2. Some proteins, such as hormones and enzymes, control and regulate body processes. Some proteins in the blood, the antibodies, help fight infection; other smaller proteins in the blood help prevent abnormal amounts of fluid in the blood from passing into tissues.
3. If you eat more protein than your body needs for these special functions, the excess protein will be used as a source of energy.

Sources

Proteins that supply a good balance of all of the essential amino acids are found in lean meats, poultry, eggs, fish, dairy products and **combinations** of grains, legumes (beans) and nuts.

FATS



Use in the Body

1. The body needs fatty acids, a sub-unit of fat, to maintain healthy cell membranes. Some fatty acids that cannot be made by the body must be included in food.
2. Fats help the body absorb some vitamins.
3. Fats supply more food energy than carbohydrates or proteins.
4. Fats make foods taste better and give us a sense of fullness after meals.

Sources

Visible: Cooking fats and oils, salad dressings, butter, margarine, fat on cuts of meat.
Invisible or "hidden" fat: Butterfat in whole milk and cheese, and the natural fat in eggs, nuts and sausage products such as hot dogs.

MINERALS

Minerals are used by the body to build structures such as bones and teeth and to regulate many body processes. Minerals often act with proteins in enzymes and hormones.

CALCIUM

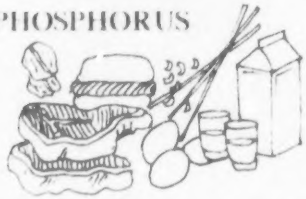
Use in the Body

1. Calcium combines with other minerals and protein to build and maintain bones and teeth.
2. Calcium is also needed for nerves and muscles.
3. Calcium is needed for blood to clot.

Sources

Milk—whole, low-fat, skim, buttermilk—fresh, dried, canned; cheese, especially cheddar-types; ice cream; ice milk; leafy vegetables and broccoli.

PHOSPHORUS



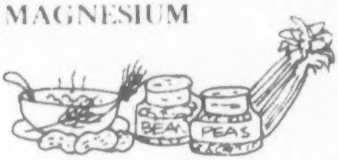
Use in the Body

1. Phosphorus binds with calcium to build strong bones and teeth.
2. Phosphorus has an important role in making food energy available in cells.

Sources

Meat, poultry, fish, milk, eggs, nuts, dried beans, peas and cereal grains.

MAGNESIUM



Use in the Body

1. Magnesium is required for proper nerve function.
2. Magnesium works with some enzymes.

Sources

Whole wheat, peanuts, dried beans and peas, nuts, grains, fruits and vegetables, fish.

IRON

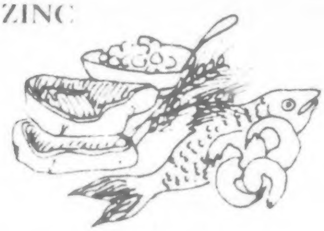
Use in the Body

1. Iron in the blood helps carry oxygen to all body cells.
2. All body cells use iron reactions (processes) that use oxygen.

Sources

Liver, other organ meats, lean meat, egg yolk, dry beans, dry peas, dark-green leafy vegetables, dried fruit, whole grain and enriched bread and cereals, and molasses.

ZINC



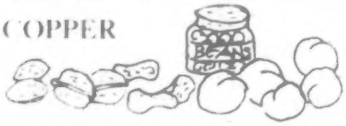
Use in the Body

1. Zinc plays a major role in maintaining healthy skin.
2. Zinc is involved with many chemical reactions in the body. Zinc is needed to heal wounds and for normal growth and development.

Sources

Whole grains, lean meats, seafood.

COPPER



Use in the Body

1. Copper helps the body produce elastic proteins found in blood vessels.

Sources

Nuts, shellfish, liver, kidney, plums and dried legumes.

IODINE

Use in the Body

1. Iodine in thyroid hormones helps regulate energy production in all body cells.

Sources

Iodized salt. Salt water fish and other seafoods.

VITAMINS

Vitamins are organic compounds which are required in the diet in extremely small amounts. Although vitamins do not provide body energy, some vitamins enable the body to use the energy from fats, carbohydrates and proteins. If the diet does not contain adequate amounts of vitamins the body will not function efficiently. It is important to eat a wide variety of foods since no single food contains all of the needed vitamins in the correct proportions.

VITAMIN A

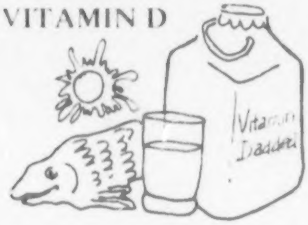
Use in the Body

1. Vitamin A prevents "night blindness", poor vision in dim light.
2. Vitamin A helps maintain healthy skin and moist membranes.
3. Vitamin A is required to grow long bones.

Sources

Liver; dark-green and deep-yellow vegetables such as broccoli, turnip and other leafy greens, carrots, pumpkin, sweet potatoes, winter squash; apricots, cantaloupe; butter, fortified margarine, yellow corn, green beans and peas.

VITAMIN D



Use in the Body

1. Vitamin D enables the body to absorb calcium from food and maintain a constant amount of calcium in the blood.
2. Vitamin D is necessary for normal bone growth.

Sources

Fish liver oils; foods, such as milk, that are fortified with vitamin D. Direct sunlight produces vitamin D from a compound in the skin.

VITAMIN E

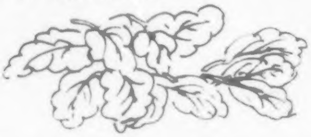
Use in the Body

1. Vitamin E protects fatty acids from breakdown.

Sources

Vegetable oils, whole grains, leafy green vegetables.

VITAMIN K



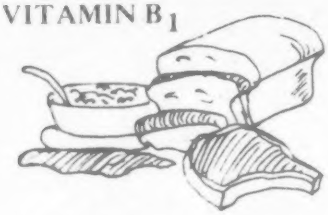
Use in the Body

1. Vitamin K is required for the process of blood clotting.

Sources

Microorganisms in the intestinal tract of healthy people make Vitamin K. It is also found in leafy vegetables.

THIAMIN - VITAMIN B_1



Use in the Body

1. Thiamin is required for body cells to obtain energy from carbohydrates.

Sources

Excellent sources: Lean pork, liver, other organ meats, dry beans and peas, whole grain and enriched cereals and breads, and some nuts. Good to fair sources: Lean meats, eggs, green leafy vegetables and nuts.

RIBOFLAVIN - VITAMIN B_2

Use in the Body

1. Riboflavin is used in reactions that provide energy.

Sources

Milk, liver, other organ meats, lean meat, eggs, and dark leafy greens.

NIACIN

Use in the Body
1. Niacin is required for cells to use energy from macronutrients.

Sources
Liver, lean meat, poultry, fish, peanuts and peanut butter, beans and peas, and whole grain and enriched breads and cereals.

PYRIDOXINE - VITAMIN B_6

Use in the Body
1. Pyridoxine is involved in the body's use of amino acids.

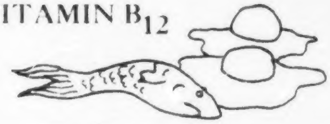
Sources
Meat, liver, vegetables, whole grain cereals.

FOLACIN

Use in the Body
1. Folacin is needed to produce normal red blood cells.

Sources
Deep green leafy vegetables, meats and liver.

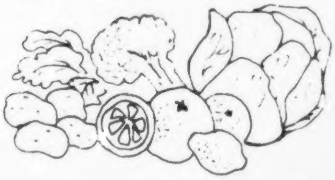
VITAMIN B_{12}



Use in the Body
1. Vitamin B_{12} is needed to produce normal red blood cells.

Sources
Liver, kidney, milk and milk products, eggs, fish, lean meat.

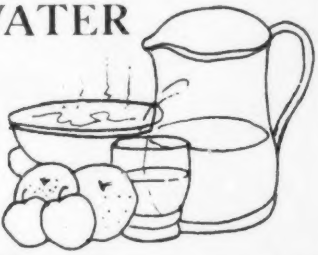
ASCORBIC ACID - VITAMIN C



Use in the Body
1. Ascorbic acid maintains the strength of blood vessels, skin, teeth and bone.
2. Ascorbic acid helps the body use some minerals such as calcium and iron.

Sources
Broccoli, green and red sweet peppers, oranges and orange juice, cantaloupe, grapefruit, strawberries, tomatoes, water melon, spinach, mustard and turnip greens, raw cabbage, potatoes.

WATER



Use in the Body
1. Water is the carrier in the body's circulation system.
2. Water regulates the body temperature.

Sources
Water, beverages, soup, fruits and vegetables. Most foods contain some water.

This publication is revised.

COOPERATIVE EXTENSION PROGRAMS

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UWEX UNIVERSITY OF WISCONSIN–EXTENSION

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JANUARY 1979

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B2630 NUTRIENTS: Sources and Functions 472

How to Take the "Drag" Out of Bag Lunches

The food children eat affects their learning and behavior, as well as their growth and development. Hungry children have difficulty concentrating on school work and have a tendency to become restless and over active. The noon meal is very important and should include the following:

1. One half-pint of lowfat milk, skim milk, lowfat yogurt or buttermilk.
2. Two ounces (edible protein as served) of lean meat, poultry, or fish; or 2 ounces of cheese; or one egg; or one-half cup of cooked dry beans or peas; or 4 tablespoons of peanut butter, or an equivalent quantity of any combinations of the above listed foods.
3. A three-fourths cup serving consisting of two or more vegetables or fruits, or both.
4. One slice of whole grain or enriched bread.

Planning Lunches—Good for Picnics, Too!

1. Sandwiches prepared the night before or in the morning before leaving for school should be safe to eat, if properly handled. Proper handling means good sanitation, adequate cooking and refrigeration.
2. If the food was properly handled at home with the sandwiches being chilled or frozen, it should be safe to eat at lunch time at school, even if not refrigerated at school.
3. Sandwiches could be wrapped in foil and frozen the night before. With care, foil may be reused as well as recycled.
4. When freezing sandwiches, omit lettuce or other greens unless chopped with filling. Wrap lettuce or greens separately. Add to sandwiches at time of eating.
5. A small thermos with a wide mouth might be a good investment. It can be used to carry such things as chili, sliced fresh fruit, crispy lettuce, or coleslaw....foods that might add variety to a packed lunch.
6. Try to use leftover meats as sandwich fillers, e.g., chicken salad made from leftover chicken or even a cold chicken leg might be a welcome change.
7. Save small plastic tubs about 6-8 ounce size (soft margarine containers).

The containers are good for carrying salad, puddings and fruit.

8. Children usually find raw vegetables fun to eat. They have more vitamins than when you cook them.
9. Desserts should be kept simple. Try fruit, pumpkin seeds, sunflower seeds, peanuts, raisins, puddings or a plain cookie.
10. Children usually like cheese and crackers for lunch. If possible you could send a small thermos of soup along with them.
11. If you are sending cut fresh fruit such as bananas, apple wedges or peach halves, dip the cut part of the fruit in any type of citrus juice such as lemon, orange or grapefruit juice. This prevents the fruit from turning brown. Dipping fruit in salted water or vinegar will also prevent the fruit from turning brown.
12. A piece of fruit will cost no more and usually less than packaged pies, potato chips, corn chips and other heavily processed foods which too often are included in packed lunches for children.

Sandwich Ideas

Egg: Chop hard-cooked egg and mix with salad dressing. For variety, add one or a combination of the following:

Onion
Celery
Raisins
Chicken
Bean Sprouts
Lettuce
Grated Carrot
Chopped Raw Spinach
Grated Cheese
Green Pepper

Cheese: Sliced or grated with salad dressing. For variety, add:

Chopped Nuts
Chopped Onion
Crushed Pineapple

Cottage Cheese: For variety, mix with:

Cucumber
Tomatoes
Apple Sauce
Chopped Fruit
Green Pepper
Caraway Seeds
Nuts
Sliced Banana

Or, spread bread with: Tomato sauce and oregano, brown mustard.

Peanut Butter: Plain or with one of the following:

Raisins
Nuts
Shredded Carrots
Molasses
Sliced Apple
Sprouts
Chopped Prunes
Sliced Banana

Baked Beans: Plain or mashed with chopped onion and a small amount of chili sauce or raisins.

Fish:

Tuna with salad dressing; add chopped celery, peanuts, apple slices or raisins.
White fish with chopped celery, catsup, salad dressing.
Salmon with salad dressing; add chopped celery.
Sardines plain or with salad dressing.

Meat:

Chicken sliced or chopped with salad dressing and shredded raw greens.
Beef sliced or chopped with salad dressing, mustard and shredded raw greens.
Turkey sliced with nuts, celery, pineapple or apple slices.

Breads

Whole grain breads such as whole wheat, rye, cracked wheat are best. If white bread is used, be sure it is enriched. Use loaf bread, flat bread, rolls, muffins, biscuits, tortillas, bagels, quick bread, steamed bread.

Fruits and/or Vegetables (something crisp or juicy)

Raw Vegetables

Carrot Strips
Celery Sticks
Lettuce Wedges
Spinach Leaf
Turnip Sticks
Endive Pieces
Radishes
Cauliflower Florets
Cucumber Strips
Kohlrabi Slices
Small Tomato or Wedge
Green Pepper Strips
Raw Potato Pieces
Cabbage Leaves

Fruits

Apples
Bananas
Cherries
Grapes
Peaches
Plums
Melon Wedges
Strawberries
Apricots
Berries
Grapefruit
Oranges
Pears
Tangerines
Seedless Grapes
Pineapple Wedges, fresh

Nutritious Treats

Raisins
Nuts
Granola
Pumpkin Seeds
Sunflower
Peanut Butter ball rolled in roasted sesame seeds

These items may be purchased in large units. A small amount wrapped in a twist of waxed paper could be placed in the lunch bag.

Milk

Lowfat milk, skim milk, lowfat yogurt or buttermilk. Try a milkshake with powdered milk, banana, or orange juice with a dash of cinnamon on top.

Foods to Avoid

Foods which should be avoided are those which contain excessive amounts of saturated fat, sugar or potentially harmful food additives such as in soft drinks, candy, jellied sugar doughnuts, potato chips, corn chips, sticky cakes, cookies and rich pastries. These foods have little or no nutritional value and are usually high in calories and cost.

*Canned fruits may be taken in bag lunch if put in tightly covered plastic container. Drain the sugary syrup.

Packed Lunches

White Fish Sandwich with catsup and Parsley
Celery Wagon
Granola
Lowfat Yogurt
Lowfat Milk

Peanut Butter and Banana Sandwich
Carrot Sticks
Hard Cooked Egg
Lowfat Milk

Bean Sandwich on Whole Wheat Bread
Coleslaw or Grated Carrots
Apple
Lowfat Milk

Cottage Cheese and Raisin Sandwich on Boston Brown Bread
Pepper Rings
Orange
Lowfat Milk

Scrambled Egg Sandwich
Fresh Tomato or Spinach Leaves
Pumpkin or Sunflower Seeds
Lowfat Milk

Sliced Turkey, Lettuce and Biscuit Sandwich
Baked Sweet Potato
Green Pepper Strips
Lowfat Milk

Cheddar Cheese and Bean Sprout Sandwich
Banana
Lowfat Milk

Tuna Salad on Roll
Green Pepper and Carrot Sticks
Pear or Plum
Lowfat Milk

Turkey Salad Sandwich
Green Salad
Orange Juice
Milk Pudding
Lowfat Milk

Chopped Egg Sandwich
Orange Wedges
Peanuts
Lowfat Milk

Salmon Salad Sandwich with Lettuce
Carrot Strips or Spinach Leaves
Banana
Lowfat Milk

Swiss Cheese Sandwich with Lettuce on Whole Wheat Bread
Tangerine
Lowfat Milk

Baked Bean and Raw Vegetable
Sandwich (or Stewed Beans)
Melon or Pineapple Wedge
Lowfat Milk

Cottage Cheese and Pineapple on
Nut Bread
Cherry Tomatoes
Oatmeal Cookie
Lowfat Milk

Riceburger
Tomatoes
Hard Cooked Egg
Oatmeal Muffin
Lowfat Milk

Chicken Wings or Drumstick
Roll or Muffin with Margarine
Fruit Salad
Peanuts
Lowfat Milk

Chopped Chicken Liver Sandwich
on Rye Bread
Parsley and Cucumber Fingers
Apple
Lowfat Milk

Tuna Fish and Lettuce Sandwich on
Whole Wheat Bread
Fresh Tomato or Coleslaw
Lowfat Milk

Surprises

On special occasions, include a favorite treat in the packed lunch. A message like "You Are Magnificent", a short poem, a funny drawing, or a portrait on an open face sandwich. For the face, use peanut butter or cream cheese, carrot curls or parsley for hair, green pepper, apple, nuts and raisins for the eyes and nose. Make a celery wagon with carrot slices on toothpicks for wheels. Put the message inside the wagon.

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Creative Food Experiences for Children

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FOOD LABELS AND HOW TO READ THEM

The Food and Drug Administration (FDA), a government agency, is given the authority (by Congress) to make and enforce regulations which pertain to food and drugs. Food labeling regulations are made by the FDA.

Some types of information must appear on *all* food labels, while other kinds of information may or may not appear - depending on the type of food, the way in which it was prepared, and the preference of the food packer, distributor, or manufacturer.

INFORMATION REQUIRED ON ALL FOOD LABELS:

1. Name of the food.
2. Net weight or net contents: Net weight equals the weight of the food plus the weight of any packaging liquid (such as water or syrup).
3. Name and address of the manufacturer, distributor, or food packer.

INFORMATION WHICH MAY APPEAR ON THE LABEL:

1. *Ingredient listing*: This is required information on *most* food labels. Exception: Foods which are known by a common name (e.g. ketchup or mayonnaise) and which contain ingredients which the FDA considers to be mandatory for that food according to FDA's "Standards of Identity". A listing of mandatory ingredients of a standardized food is *not* required on the label.

   Artificial coloring, flavorings or preservatives: Must be listed as part of the ingredients if the food contains them.

   The ingredients are listed as follows: The ingredient which weighs the *most* is always listed first, followed by the ingredient which is next in weight, and so on. The ingredient which is listed last weighs the least.

2. Last date of sale
3. Cost
4. "K" Symbol ("K" stands for Kosher)

A Consumer's Guide To Food Labels

by Margaret Morrison

Food labels provide a great deal of information that can help consumers find out more about what they're getting in the products they buy. Some of this information is required by FDA to be shown on the label; some is included on the label at the option of the manufacturer or processor. Some of the information on food labels may be in the form of symbols or codes or dates.

Here's a rundown of the information most often found on food labels along with a brief explanation of what it means.

BASIC INFORMATION

Certain information must be on all food labels:

- The name of the product.
- The net contents or net weight. The net weight on canned food includes the liquid in which the product is packed, such as water in canned vegetables and syrup in canned fruit.
- The name and place of business of the manufacturer, packer, or distributor.

List of Ingredients

On most foods, the ingredients must be listed on the label. The ingredient present in the largest amount, by weight, must be listed first, followed in descending order of weight by the other ingredients. Any additives used in the product must be listed, but colors and flavors do not have to be listed by name. The list of ingredients may simply say "artificial color" or "artificial flavor" or "natural flavor." If the flavors are artificial, this fact must be stated. Butter, cheese, and ice cream, however, are not required to state the presence of artificial color.

The only foods not required to list all ingredients are so-called standardized foods. FDA has set "standards of identity" for some foods. These standards require that all foods called by a particular name (such as catsup or mayonnaise) contain certain mandatory ingredients. Under the law, the mandatory ingredients in standardized foods need not be listed on the label. Manufacturers may add optional ingredients, however, and FDA is revising the food standards regulations to require that optional ingredients in standardized foods be listed on the product label.

NUTRITION INFORMATION

Under FDA regulations, any food to which a nutrient has been added, or any food for which a nutritional claim is made, must have the nutritional content listed on the label. In addition, many manufacturers put nutrition information on products when not required to do so.

Nutrition labels tell you how many calories and how much protein, carbohydrate, and fat are in a serving of the product. They also tell the percentage of the U.S. Recommended Daily Allowances (U.S. RDA's) of protein and seven important vitamins and minerals that each serving of the product contains. Nutrition information can help you shop for more nutritious food and plan more nutritionally balanced meals for you and your family.

How to Read Nutrition Labels

Nutrition information is given on a per serving basis. The label tells the size of a serving (for example: one cup, two ounces, 1 tablespoon), the number of servings in the container, the number of calories per serving, and the amounts in grams of protein, carbohydrate, and fat per serving.

Protein is listed twice on the label: in grams and as a percentage of the U.S. Recommended Daily Allowance.

Seven vitamins and minerals must be shown, in a specific order. The listing of 12 other vitamins and minerals, and of cholesterol, fatty acid, and sodium content is optional.

What U.S. RDA Means

The U.S. Recommended Daily Allowances (U.S. RDA's) are the approximate amounts of protein, vitamins, and minerals that an adult should eat every day to keep healthy. Nutrition labels list the U.S. RDA by percentage. For example, the label may state that one serving of the food contains 35 percent of the Recommended Daily Allowance of vitamin A and 25 percent of the Recommended Daily Allowance of iron. The total amount of food an individual eats in a day should supply the U.S. Recommended Daily Allowance of all essential nutrients.

A Key to Metric Units

Nutrition labels show amounts in grams rather than ounces, because grams are a smaller unit of measurement and many food components are present in very small amounts. Here is a guide to help you read nutrition labels:

1 pound (lb.) = 454 grams (g)
1 ounce (oz.) = 28 grams (g)
1 gram (g) = 1,000 milligrams (mg)
1 milligram (mg) = 1,000 micrograms (mcg)

Nutrition Quality

Many foods today are manufactured into products that are different from traditional foods. Some classes of these

A. *The name of the product must be on all food labels.*

B. *The net contents or net weight must be on all food labels.*

C. *The name and place of business of the manufacturer, packer or distributor must be on all food labels.*

D. *On most foods, the ingredients must be listed on the label.*

E. *Some food products carry a grade on the label.*

F. *To help consumers obtain fresh and wholesome food, many manufacturers open date their product.*

G. *Many companies use code dating on products that have a long "shelf life".*

H. *Many food labels now include a small block of parallel lines of various widths with accompanying numbers for computerized check-outs and inventories.*

I. *The symbol "®" on a label signifies that the trademark used on the label is registered with the U.S. Patent Office.*

foods include frozen dinners; breakfast cereals; meal replacements; noncarbonated breakfast beverages fortified with vitamin C; and main dishes such as macaroni and cheese, pizzas, stews, and casseroles.

FDA is establishing voluntary nutritional guidelines for such foods, so consumers can be assured of getting a proper level and range of nutrients when using them. A product that complies with an FDA nutritional quality guideline may include on its label a statement that it meets the U.S. nutritional quality guideline for that particular class of food.

WHAT "IMITATION" MEANS

Some foods are labeled as "imitations" of other foods. Under an FDA regulation, the word "imitation" must be used on the label when the product is not as nutritious as the product which it resembles and for which it is a substitute. If a product is similar to an existing one, and is just as nutritious, a new name can be given to it rather than calling it "imitation." For example, eggless products which are nutritionally equivalent to eggs have been given names such as Eggbeaters and Scramblers.

COMMON OR USUAL NAME

Some foods may look from the label as though they are one thing and actually be another. To prevent deception of consumers, FDA has ruled that such foods must have a "common or usual" name which gives the consumer accurate information about what is in the package or container.

For example, a beverage that looks like orange juice but actually contains very little orange juice must use a name such as "diluted orange juice drink." The product also may be required to state on the label the percentage of the characterizing ingredient it contains. In this case, the common or usual name might be "diluted orange juice beverage, contains 10 percent orange juice."

A noncarbonated beverage that appears to contain a fruit or vegetable juice but does not contain any juice must state on the label that it contains no fruit or vegetable juice.

Another special labeling requirement concerns packaged foods in which the main ingredient or component of a recipe is not included, as in the case of some "main dishes" or "dinners." On such foods, the common or usual name consists of the following:

- The common name of each ingredient in descending order by weight—for example, "noodles and tomato sauce."
- Identification of the food to be prepared from the package—for example, "for preparation of chicken casserole."
- A statement of ingredients that must be added to complete the recipe—for example, "you must add chicken to complete the recipe."

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FDA CONSUMER

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GRADES

Some food products carry a grade on the label, such as "U.S. Grade A." Grades are set by the U.S. Department of Agriculture, based on the quality levels inherent in a product—its taste, texture, and appearance. U.S. Department of Agriculture grades are not based on nutritional content.

Milk and milk products in most States carry a "Grade A" label. This grade is based on FDA recommended sanitary standards for the production and processing of milk and milk products, which are regulated by the States. The grade is not based on nutritional values. However, FDA has established standards for milk which require certain levels of vitamins A and D when these vitamins are added to milk.

OPEN DATING

To help consumers obtain food that is fresh and wholesome, many manufacturers date their product. Open dating, as this practice often is called, is not regulated by FDA, but the following information may be helpful to you.

Four kinds of open dating are commonly used. To benefit from open dating, the consumer needs to know what kind of dating is used on the individual product and what it means.

Pack Date—This is the day the food was manufactured or processed or packaged. In other words, it tells how old the food is when you buy it. The importance of this information to consumers depends on how quickly the particular food normally spoils. Most canned and packaged foods have a long shelf life when stored under dry, cool conditions.

Pull or Sell Date—This is the last date the product should be sold, assuming it has been stored and handled properly. The pull date allows for some storage time in the home refrigerator. Cold cuts, ice cream, milk, and refrigerated fresh dough products are examples of foods with pull dates.

Expiration Date—This is the last date the food should be eaten or used. Baby formula and yeast are examples of products that may carry expiration dates.

Freshness Date—This is similar to the expiration date but may allow for normal home storage. Some bakery products that have a freshness date are sold at a reduced price for a short time after the expiration date.

CODE DATING

Many companies use code dating on products that have a long "shelf life". This is usually for the company's information, rather than for the consumer's benefit. The code gives the manufacturer and the store precise information about where and when the product was packaged, so if a recall should be required for any reason the product can be identified quickly and withdrawn from the market.

UNIVERSAL PRODUCT CODE

Many food labels now include a small block of parallel lines of various widths, with accompanying numbers. This is the Universal Product Code (UPC). The code on a label is unique to that product. Some stores are equipped with computerized checkout equipment that can read the code and automatically ring up the sale. In addition to making it possible for stores to automate part of their checkout work, the UPC, when used in conjunction with a computer, also can function as an automated inventory system. The computer can tell management how much of a specific item is on hand, how fast it is being sold, and when and how much to order.

SYMBOLS ON FOOD LABELS

The symbol "R" on a label signifies that the trademark used on the label is registered with the U.S. Patent Office.

The symbol "C" indicates that the literary and artistic content of the label is protected against infringement under the copyright laws of the United States. Copies of such labels have been filed with the Copyright Office of the Library of Congress.

The symbol which consists of the letter "U" inside the letter "O" is one whose use is authorized by the Union of Orthodox Jewish Congregations of America, more familiarly known as the Orthodox Union, for use of foods which comply with Jewish dietary laws. Detailed information regarding the significance and use of this symbol may be obtained from the headquarters of that organization at 116 E. 27th St., New York, New York 10016.

The symbol which consists of the letter "K" inside the letter "O" is used to indicate that the food is "Kosher," that is, it complies with the Jewish dietary laws, and its processing has been under the direction of a rabbi.

None of the symbols referred to above are required by, or are under the authority of, any of the Acts enforced by the Food and Drug Administration.

Margaret Morrison is a staff writer with FDA's Office of Public Affairs.

Parent Information Letter: ANOREXIA NERVOSA

The reverse of obesity, called anorexia nervosa or willful starvation, is a problem of great concern during adolescence. While not entirely a nutritional problem, this serious disorder is characterized by severe weight loss in the absence of disease. Periods of compulsive eating (alternating with minimal intake), self-induced vomiting, and use of laxatives and diuretics may be noted. The specific cause or causes of the disorder are unknown. It is known, however, that anorexics have a distorted body image and harbor an obsessive fear of gaining weight. This condition is diagnosed 10 times more frequently in adolescent girls than in boys; it is usually observed in middle class, ambitious, conforming, and hyperactive adolescents. Anorexia nervosa usually has its origin during puberty. As weight loss continues, emaciation and amenorrhea (cessation of menstruation) commonly result. It is important that this disorder be recognized early, so that proper treatment involving psycho-therapy and hospitalization can be instituted to correct the condition.

Specific suggestions for parents:

1) If you sense a problem, monitor your child's weight - any loss of weight is suspicious, since adolescents are rapidly growing and adding to their body mass.
2) Be alert to instances when your child may refer to herself as being "too fat" or express disgust at how "large" her stomach or thighs are. These can be signs of distorted body image.
3) Note that children/adolescents with anorexia nervosa are often compulsive exercisers.

*If you as a parent suspect this disorder in your child, please consult your pediatrician immediately. Do not try to "cure" your child by yourself.

EQUIPMENT/SUPPLIES:

Measuring cups/spoons
2 big bowls
Spoon to stir
Griddle or frying pan
Spatula
Toothpicks

NAME OF RECIPE: "Berries in a Bed-Roll"

INGREDIENTS:

1 1/2 c. whole wheat flour
1 3/4 t. baking powder
1/2 t. salt
3 T. honey
2 eggs
3 T. vegetable oil
1 1/4 c. milk
1/2 c. fresh or frozen, thawed and drained berries
(blueberries, raspberries, strawberries, any berry!)

DIRECTIONS:

1. Combine the first three ingredients in a big bowl.
2. Beat the 2 eggs, add honey, oil and milk, and mix these well.
3. Add #2 to #1 and mix till barely moistened. (Ignore the lumps - believe it or not, they're supposed to be there!) TIME-SAVER: Make this batter the night before and set it (covered) in the refrigerator overnight.
4. To make the bed-rolls: Pour about 1/4 cup of batter on a hot griddle or frying pan that has been lightly greased. (Can make about 4 at a time.) When bubbles appear on the upper surface of the bed-rolls, turn and brown the other side (Mom or Dad may need to help you).
5. Place 1-2 T. of berries in the center of each bed-roll and roll up, secure with a toothpick and eat, with applesauce or fruit puree.

EQUIPMENT/SUPPLIES:

Toaster oven or oven

NAME OF RECIPE: "Breakfast Pizza" (Pizza?!)

INGREDIENTS:

1 split, toasted English muffin

2 T. tomato paste or leftover spaghetti sauce

2 slices of mozzarella cheese (opt. 1/4 of a green pepper, chopped)

- - This makes 2 mini-pizzas - -

DIRECTIONS:

1. Spread 1 T. of tomato paste or spaghetti sauce on each of the toasted muffin halves.
2. Place a slice of mozzarella cheese on each muffin.
3. (Optional) Sprinkle chopped green pepper over top.
4. Toast (in oven or toaster-oven) 'til cheese has melted and is gooey.
5. Eat! Imagine what your friends will say when you tell them you had PIZZA for breakfast!!!

EQUIPMENT/SUPPLIES:

Cereal bowl

488

NAME OF RECIPE: "Crazy A.M. Crumble"

INGREDIENTS:

1 whole grain muffin (whole wheat, oatmeal, bran, etc.)

Handful of raisins

1 c. milk

"This is an instant breakfast in a bowl!"

DIRECTIONS:

1. Crumble the muffin in a cereal bowl.
2. Sprinkle the raisins on top.
3. Pour on the milk.
4. Eat!

489

EQUIPMENT/SUPPLIES:

Mixing bowl

NAME OF RECIPE: "P.B. and O." ("Peanut Butter and Orange")

INGREDIENTS:

1 c. crunchy peanut butter

2 T. honey

1 c. peeled, diced orange

2 slices whole wheat bread

DIRECTIONS:

1. Mix peanut butter and honey.
2. Stir in oranges.

*You can make this filling the night before. It makes enough for 3-4 sandwiches.

3. Chill.
4. Use about 1/3 cup of filling to spread between 2 slices of whole wheat bread. Yum!
5. "Orange" you glad you got up in time for breakfast this morning?

EQUIPMENT/SUPPLIES:

Toaster

492

NAME OF RECIPE: "Wonderful, Whacky Waffles"

INGREDIENTS:

2 frozen whole wheat waffles, and

{ 1/2 sliced banana and 2 T. peanut butter
OR
{ 1 or 2 slices of your favorite cheese

DIRECTIONS:

1. Toast the 2 waffles.
2. Make a waffle sandwich by either:
   - A) Spreading peanut butter on the waffles and arranging banana slices on top, or by ...
   - B) Placing 1-2 slices of cheese between the hot waffles.

493

EQUIPMENT/SUPPLIES:

Tall drinking glass

Blender

NAME OF RECIPE: "Breakfast in a Glass"

INGREDIENTS:

1/2 c. plain yogurt

1/2 c. orange juice

1/2 ripe (brown) banana

1 T. honey or molasses

DIRECTIONS:

1. Mix all together! (A blender is needed here)
2. Pour in a tall glass.
3. Drink up!

Finally, in spite of good intentions, you may find yourself in front of a VENDING MACHINE.

-Look at the choices carefully, and try to determine what the ingredients are.

-Remember some of the items mentioned on our snack list, and see if any of them are available.

-Remember what was stated about baked goods in the snack section.

-When choosing something to drink, milk is a good choice, as is fruit juice. Always choose fruit juice, rather than fruit drink. Drink usually contains a lot of extra sugar and water, and not much juice.

Wisconsin Nutrition Education
and Training Program
Funding provided by USDA under PL 95-166, administered through Wisconsin Department of Public Instruction, Food and Nutrition Services.

AN EQUAL OPPORTUNITY PROGRAM - The Nutrition Education and Training Program of the U.S. Department of Agriculture is available to all individuals regardless of race, color, national origin, age, sex or handicap. Persons who believe they have been denied equal opportunity for participation, may write the Secretary of Agriculture, Washington, D.C. 20250.

QUICK FOODS

Do you ever find yourself ...

-Hungry, but without a lot of time to prepare food?

-Away from home and hungry for a snack?

-On the run, without much time to eat?

-In front of a vending machine, wondering which food or beverage would be the most nutritious choice?

We'd like to give you some ideas, so please read on!

Before you begin your day (or evening before), run through it mentally. See whether you will have time to eat meals and snacks, and whether nutritious foods will be available to you.

If not, our list of SIMPLE SNACKS might provide the answer. They are easily carried, or can be eaten at home.

SIMPLE SNACKS

-Nuts and seeds (such as peanuts, sunflower seeds, pistachio nuts, almonds, etc.)

-Raisins and other dried fruit* (Dates, figs, dried apricots, etc.)

-Whole grain (such as wheat) crackers with cheese or peanut butter.

-Unbuttered popcorn

-Hard cooked eggs

-Cheese cubes or slices and fruit.

-Fresh fruit

-Fresh vegetables, such as carrot sticks, whole tomatoes. Celery sticks can be filled with peanut butter.

-Yogurt

-Baked Goods. You may be surprised to see these listed here. We are including them to show the importance of making good food choices. When chosen well, baked goods can provide good nutrition. When buying baked goods, look for inclusion of whole grains, fruits, vegetables and nuts. In addition, items can be baked at home in quantity and frozen for later use. Sugar can be decreased by up to 50%, and some whole wheat flour substituted for white.

Bran or Corn Muffins
Oatmeal Cookies
Peanut Butter Cookies
Banana Bread
Date Nut Bread
Carrot or Applesauce Cake are a few suggestions.
Read the ingredients list and choose your own.

*These foods are sticky and sweet; brush, floss or rinse teeth after eating them.

SANDWICHES are another good meal or snack item when made with:

-Whole grain or enriched breads. Use of different types of bread such as rye, whole wheat, bagels, etc., adds variety to a lunch.

-Fresh vegetables. This can include dark green lettuce, tomato, cucumber or zucchini slices, shredded carrots or bean sprouts.

-Fruit. Apple or pear slices go well with cheese, and banana slices or raisins are delicious with peanut butter.

-Fillings such as tunafish, cheese, chicken, turkey, beef, meatloaf, peanut butter or egg salad.

When you're AT HOME, additional quick light meal and snack items are:

-Canned soups, especially those containing lots of beans or meat or vegetables (A small, wide-mouthed thermos is a good way of carrying soup to work or school).

-Grilled cheese, can be eaten plain or "dressed up" with tomato sauce, onions, etc.

-Cottage cheese with fresh or canned fruit.

-Unsweetened cereal with fruit and milk.

-"Blender Shakes", made in a blender with combinations of milk, fruit and/or fruit juice. Use your imagination.

DOWN ON THE FARM

Objective : Student will learn the origins of certain foods.

Materials:

Oaktag
Colored marking pens
Colorful cloth tape
Rulers
Scissors
Velcro
Glue
Pencils

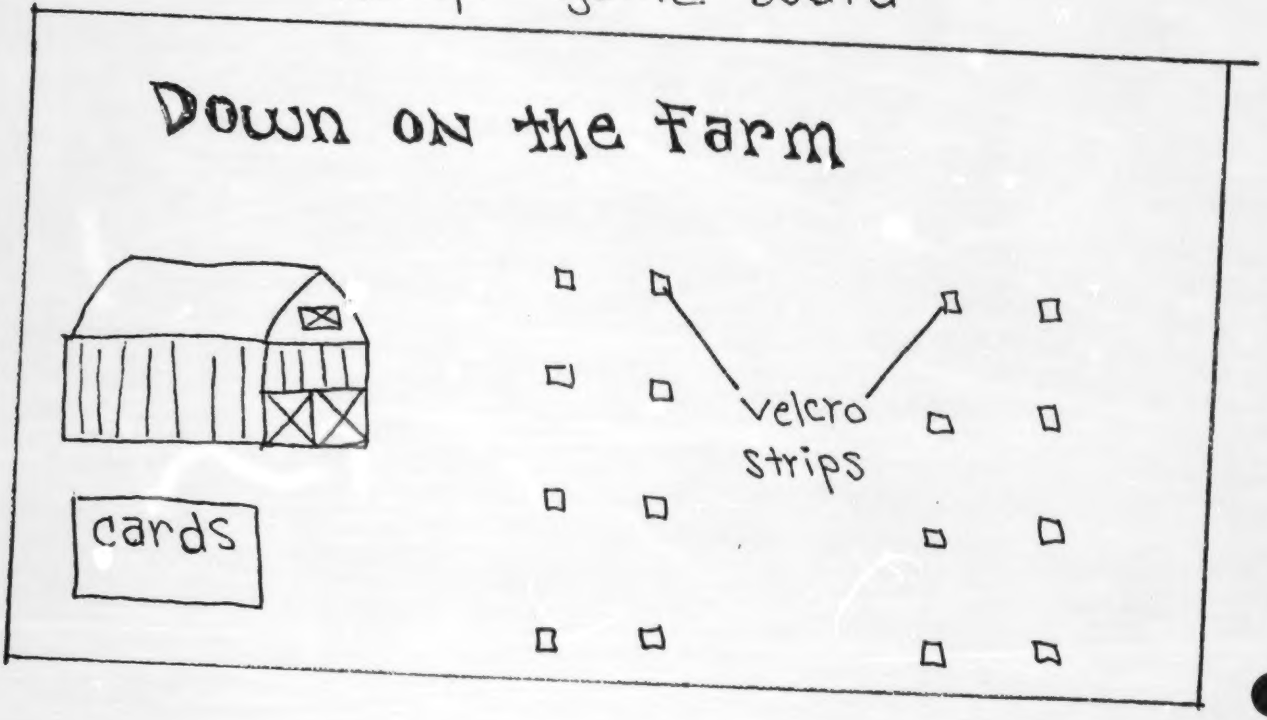
How to Assemble:

- Draw lettering on oaktag (as shown on sample)
- Draw lettering and cut out card pocket
- Color, cut out and glue barn onto oaktag
- Color cards and glue onto oaktag
- Laminate all pieces (if possible)
- Tape card pocket onto oaktag
- Cut cards apart
- Glue velcro to cards and appropriate places on oaktag

How To Play:

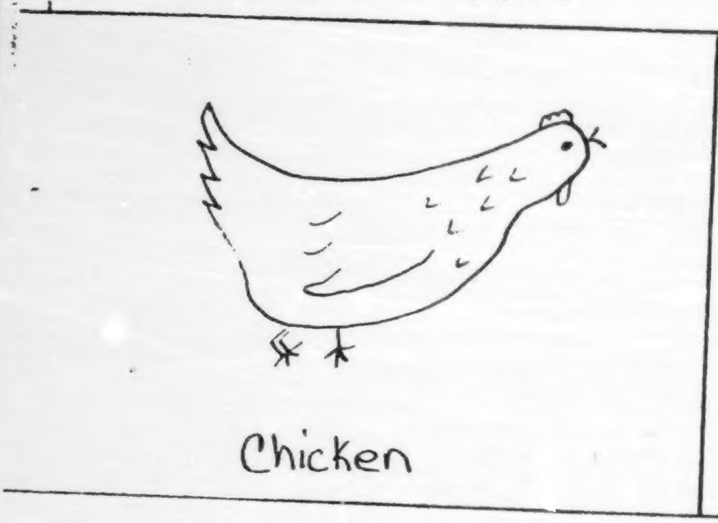
- Take food source cards out of pocket and place on board (using velcro strips).
- Match by placing food card next to its source.

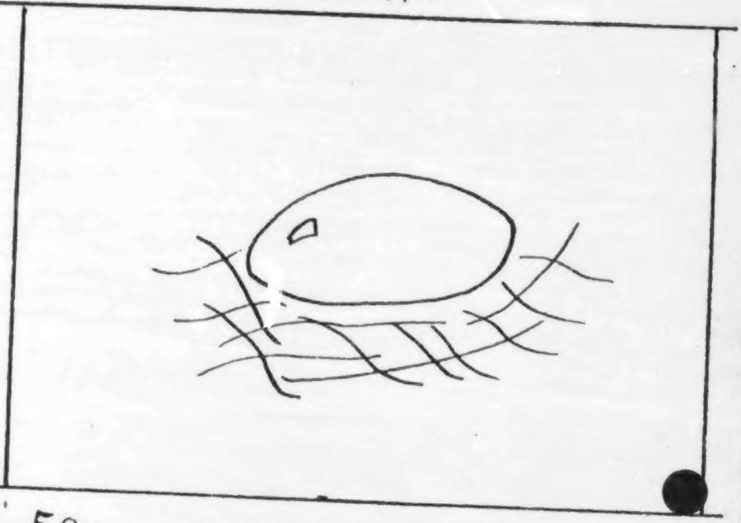
sample game board

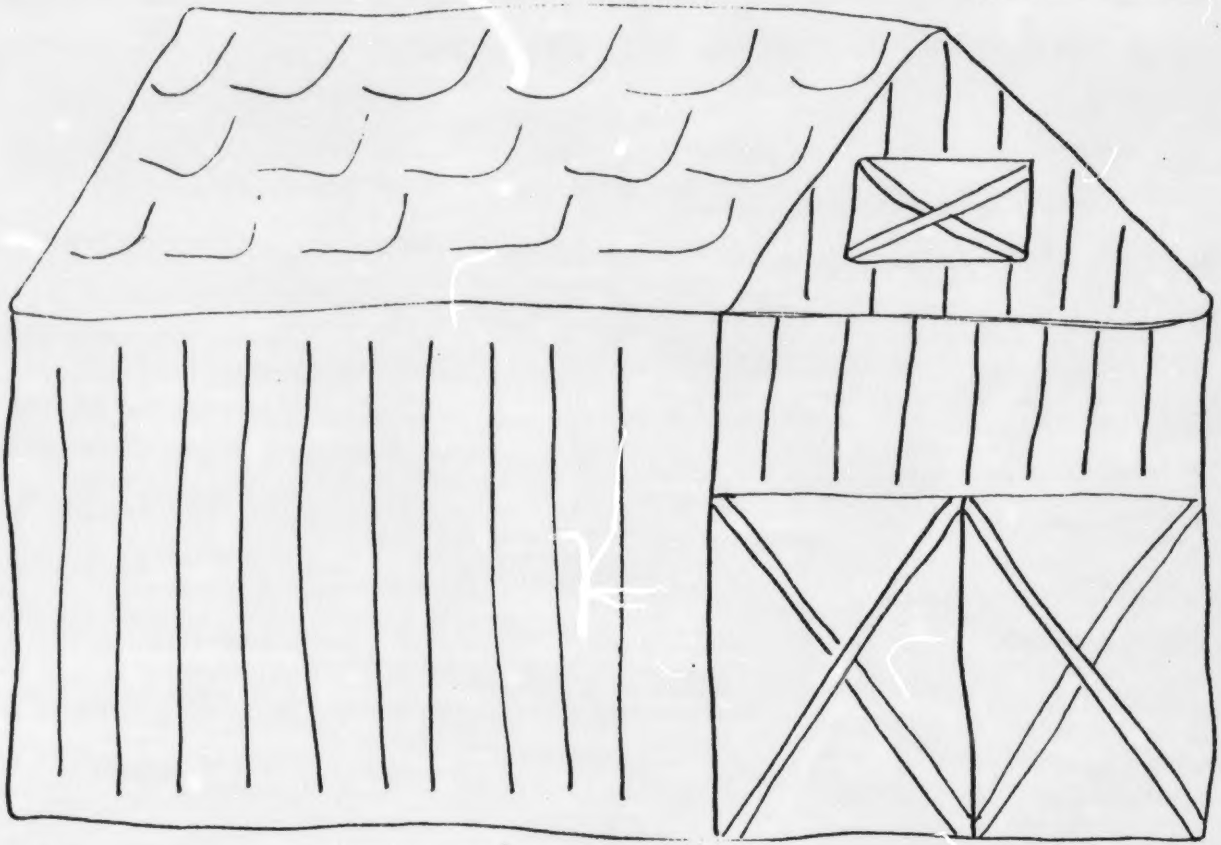

Down on the Farm
cards
velcro strips

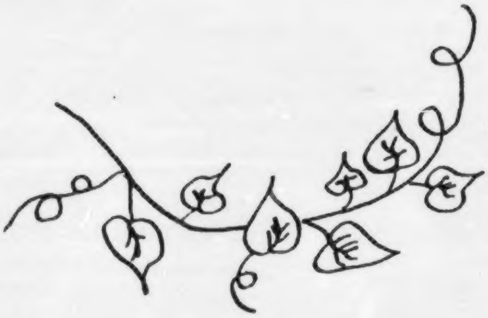
FOOD SOURCE CARDS

FOOD CARDS

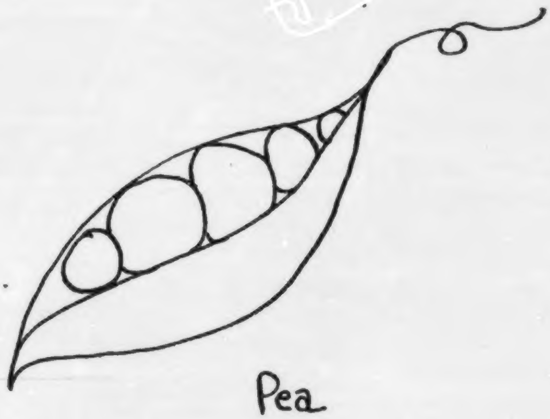




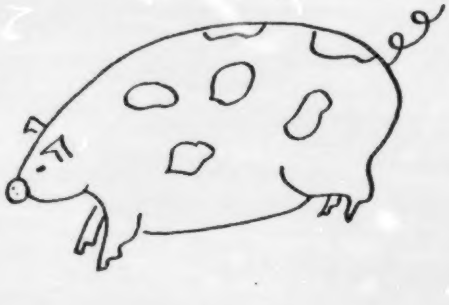




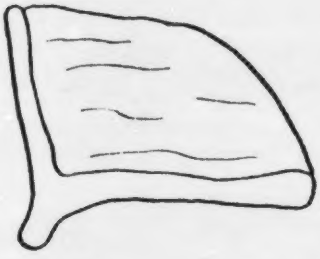
vine



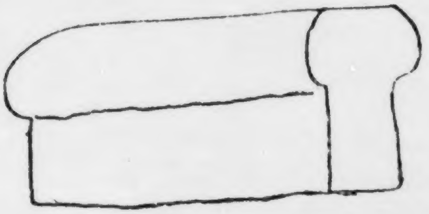
Pea



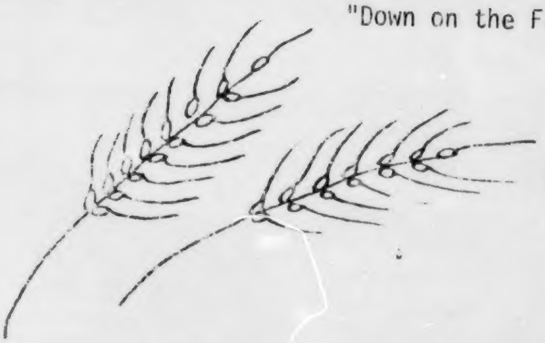
Pig



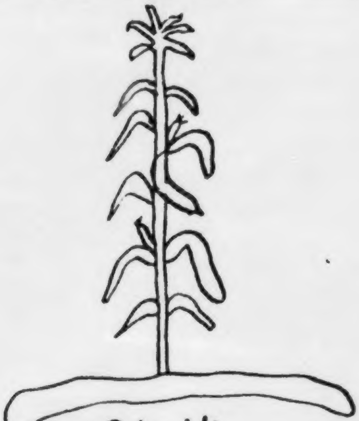
Pork Chop



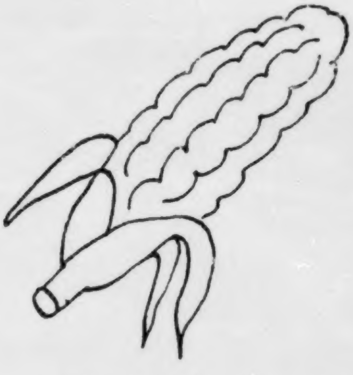
Bread



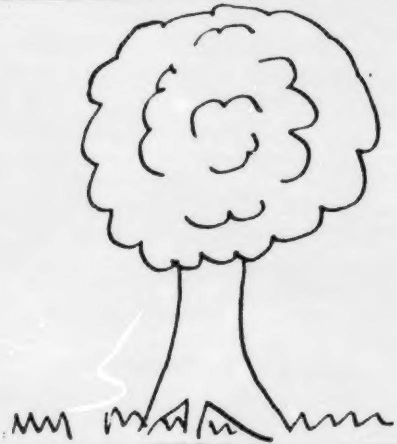
Wheat



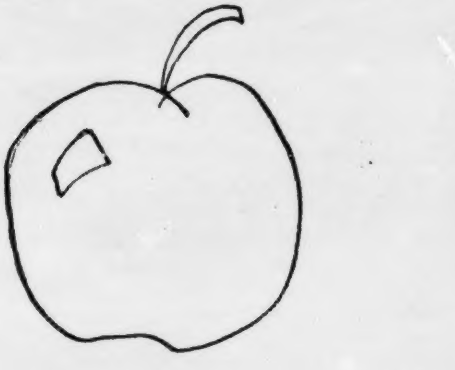
Stalk



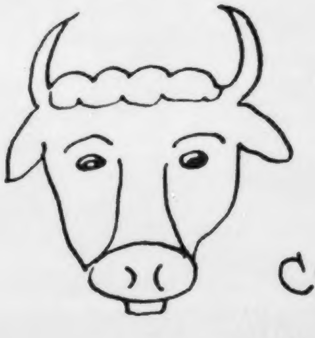
corn



Tree

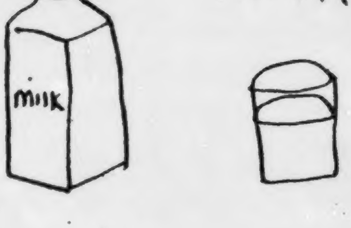


Apple



cow

milk



FEAST OR FAMINE

BOARD GAME

Objective: Student will become aware of obstacles to an adequate food supply in developing nations.

Materials:

Game Board (in 4 pieces, in this packet)
Food Cards (3 sheets, in this packet
Playing Cards - Underdeveloped Nations (2 sheets, in this packet)
Playing Cards - Developed Nations (2 sheets, in this packet)
Colored crayons or Marking pens
Scissors
Tape
Colored Oaktag
1 Die
Glue
Buttons or painted bottle tops (for game markers)

How to Assemble:

- Tape 4 pieces of game board together
- Paste game board to colored oaktag
- Color game board
- Paste cards to oaktag backing
- Laminate cards and board (if possible)
- Cut cards apart

How to Play:

- Players toss the die. Group is divided into halves: those who have tossed the highest numbers become "developed" nations; those who have tossed the lowest numbers become "underdeveloped" nations. If there is a tie, both players become underdeveloped nations. If an uneven number of people are playing, the majority become underdeveloped nations.
- Developed nations receive 5 food cards, underdeveloped nations receive 2 food cards.
- Players again toss the die, and the one with the highest number begins. Players take turns tossing the die, and moving their markers the designated number of squares, following instructions on squares.
- When instructed to take a card, players must take from underdeveloped stack if they are underdeveloped, and developed stack if they are developed nations. Cards should be placed at bottom of stack when instructions have been completed.

- The Player that reaches the Land of Plenty first, receives five points. When all players have reached either the Land of Plenty - or Famine, Food Card points are added up (including bonus points for coming in first), and the player with the highest number of points wins the game.

Discussion:

- Was this a fair game? Why or why not?
- Is food really distributed this way in the world? Do all people receive the same amount of food?
- What are the reasons for unequal distribution of food?
- What can be done about this?
- Can our class do anything about this?

YOU HAD A BUMPER CROP!

MOVE AHEAD TWO SPACES.

-U-

SEVERE HURRICANES HAVE DESTROYED MUCH OF YOUR CROP.

GO BACK TWO SPACES

-U-

YOU ARE ELIGIBLE FOR FOREIGN AID.

COLLECT TWO FOOD CARDS FROM THE RICHEST NATION.

-U-

DROUGHT DESTROYED YOUR CROP.

GIVE BACK THREE FOOD CARDS. IF YOU DON'T HAVE THIS MANY, GO BACK TWO SPACES.

-U-

YOUR POPULATION HAS INCREASED, SO THERE IS LESS FOOD FOR EACH PERSON.

GIVE BACK ONE FOOD CARD.

-U-

YOUR POPULATION HAS DECREASED, SO THERE IS MORE FOOD FOR EACH PERSON.

TAKE ONE FOOD CARD.

-U-

YOU ARE RAISING CASH CROPS (COFFEE, CHOCOLATE, TOBACCO) TO SELL TO OTHER NATIONS INSTEAD OF RAISING FOOD TO FEED YOUR PEOPLE.

GIVE BACK TWO FOOD CARDS.

-U-

YOUR WELL HAS RUN DRY AND THERE IS NO WATER FOR YOUR ANIMALS.

GIVE BACK TWO FOOD CARDS

-U-

LOCUSTS HAVE INVADED YOUR FIELDS, AND ARE EATING YOUR CROPS.

GIVE BACK THREE FOOD CARDS

-U-

RAIN! NOW YOU CAN WATER YOUR FIELDS.

COLLECT TWO FOOD CARDS.

-U-

PLAYING CARDS FOR "FEAST OR FAMINE" GAME

YOU HAD A BUMPER CROP!

MOVE AHEAD TWO SPACES.

-U-

YOUR POPULATION HAS DECREASED, SO THERE IS MORE FOOD FOR EACH PERSON.

TAKE ONE FOOD CARD.

-U-

SEVERE HURRICANES HAVE DESTROYED MUCH OF YOUR CROP.

GO BACK TWO SPACES

-U-

YOU ARE RAISING CASH CROPS (COFFEE, CHOCOLATE, TOBACCO) TO SELL TO OTHER NATIONS INSTEAD OF RAISING FOOD TO FEED YOUR PEOPLE.

GIVE BACK TWO FOOD CARDS.

-U-

YOU ARE ELIGIBLE FOR FOREIGN AID.

COLLECT TWO FOOD CARDS FROM THE RICHEST NATION.

-U-

YOUR WELL HAS RUN DRY AND THERE IS NO WATER FOR YOUR ANIMALS.

GIVE BACK TWO FOOD CARDS

-U-

DROUGHT DESTROYED YOUR CROP.

GIVE BACK THREE FOOD CARDS. IF YOU DON'T HAVE THIS MANY, GO BACK TWO SPACES.

-U-

LOCUSTS HAVE INVADED YOUR FIELDS, AND ARE EATING YOUR CROPS.

GIVE BACK THREE FOOD CARDS

-U-

YOUR POPULATION HAS INCREASED, SO THERE IS LESS FOOD FOR EACH PERSON.

GIVE BACK ONE FOOD CARD.

-U-

RAIN! NOW YOU CAN WATER YOUR FIELDS.

COLLECT TWO FOOD CARDS.

-U-

PLAYING CARDS FOR "FEAST OR FAMINE" GAME

PLAYING CARDS FOR "FEAST OR FAMINE" GAME

YOU HAD A BUMPER CROP!

MOVE AHEAD TWO SPACES

-D-

SEVERE STORMS HAVE DESTROYED MUCH OF YOUR CROP.

GO BACK TWO SPACES.

-D-

DONATE FOOD TO A NEEDY NATION.

GIVE TWO FOOD CARDS TO POOREST NATION.

-D-

DROUGHT DESTROYED YOUR CROP.

GIVE BACK TWO FOOD CARDS

-D-

GOOD FARM MACHINERY HELPED YOU TO PLANT AND HARVEST A HUGE CROP.

COLLECT TWO FOOD CARDS

-D-

YOUR POPULATION HAS DECREASED, SO THERE IS MORE FOOD FOR EACH PERSON.

COLLECT ONE FOOD CARD.

-D-

DROUGHT HAS DAMAGED YOUR GRAIN CROP.

GIVE BACK TWO FOOD CARDS.

-D-

IF YOU WANT TO, DONATE TWO FOOD CARDS TO THE POOREST NATION.

EXPLAIN YOUR DECISION TO THE REST OF THE PLAYERS.

-D-

RAIN! NOW YOU CAN WATER YOUR FIELDS.

COLLECT TWO FOOD CARDS.

-D-

YOU HAD A BUMPER CROP!

COLLECT TWO FOOD CARDS.

-D-

PLAYING CARDS FOR "FEAST OR FAMINE" GAME

YOU HAD A BUMPER CROP!

MOVE AHEAD TWO SPACES

-D-

YOUR POPULATION HAS DECREASED, SO THERE IS MORE FOOD FOR EACH PERSON.

COLLECT ONE FOOD CARD.

-D-

SEVERE STORMS HAVE DESTROYED MUCH OF YOUR CROP.

GO BACK TWO SPACES.

-D-

DROUGHT HAS DAMAGED YOUR GRAIN CROP.

GIVE BACK TWO FOOD CARDS.

-D-

DONATE FOOD TO A NEEDY NATION.

GIVE TWO FOOD CARDS TO POOREST NATION.

-D-

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-D-

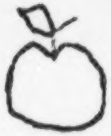
YOU HAD A BUMPER CROP!

COLLECT TWO FOOD CARDS.

-D-

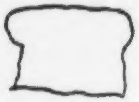
FOOD CARDS FOR "FEAST OR FAMINE" GAME

FOOD CARD



FIVE POINTS

FOOD CARD



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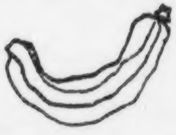
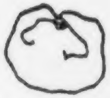
FOOD CARD



FIVE POINTS

FOOD CARD



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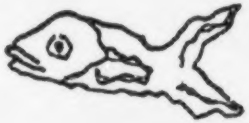
FOOD CARD



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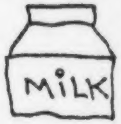
FOOD CARD



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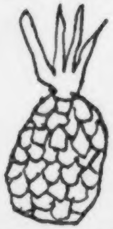
FOOD CARD



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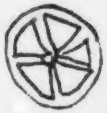
FOOD CARD



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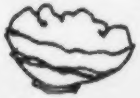
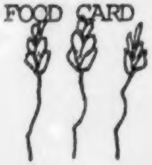
FOOD CARD



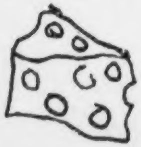
FIVE POINTS

FOOD CARD



FIVE POINTS

FOOD CARD



FIVE POINTS

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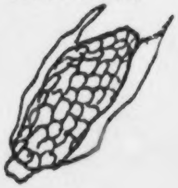
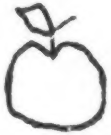


FIVE POINTS

FOOD CARDS FOR "FEAST OR FAMINE" GAME

FOOD CARD



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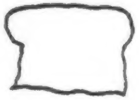

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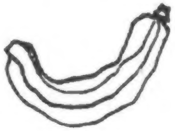

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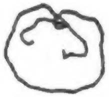

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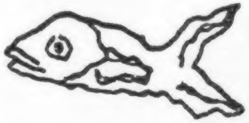

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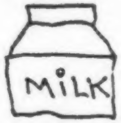

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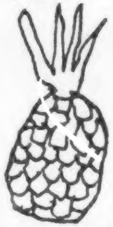

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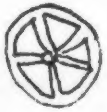

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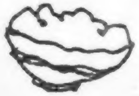

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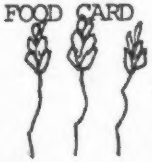

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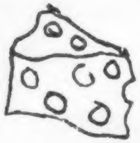

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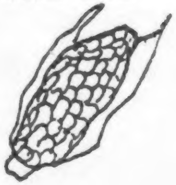
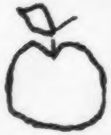


FIVE POINTS

FOOD CARDS FOR "FEAST OR FAMINE" GAME

FOOD CARD



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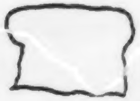

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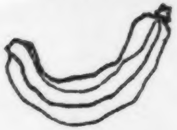

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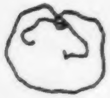

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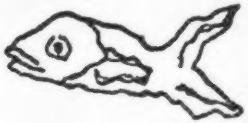

FIVE POINTS

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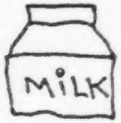
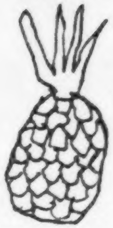


MILK

FIVE POINTS

FOOD CARD



FIVE POINTS

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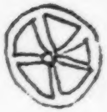

FIVE POINTS

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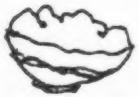

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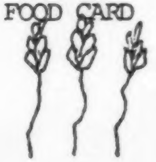

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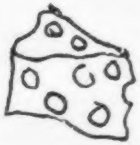

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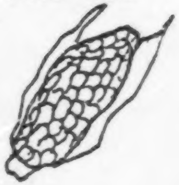

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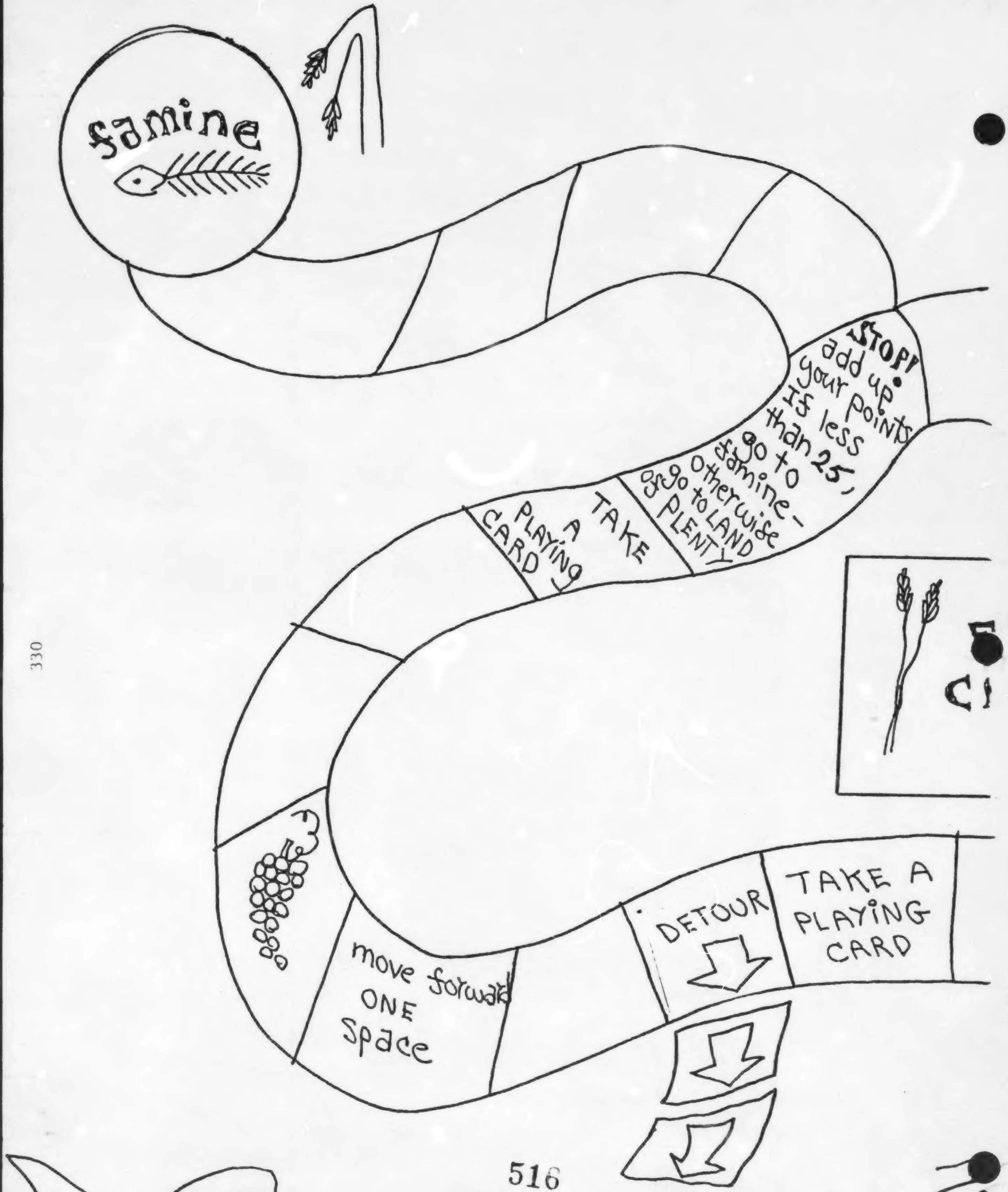
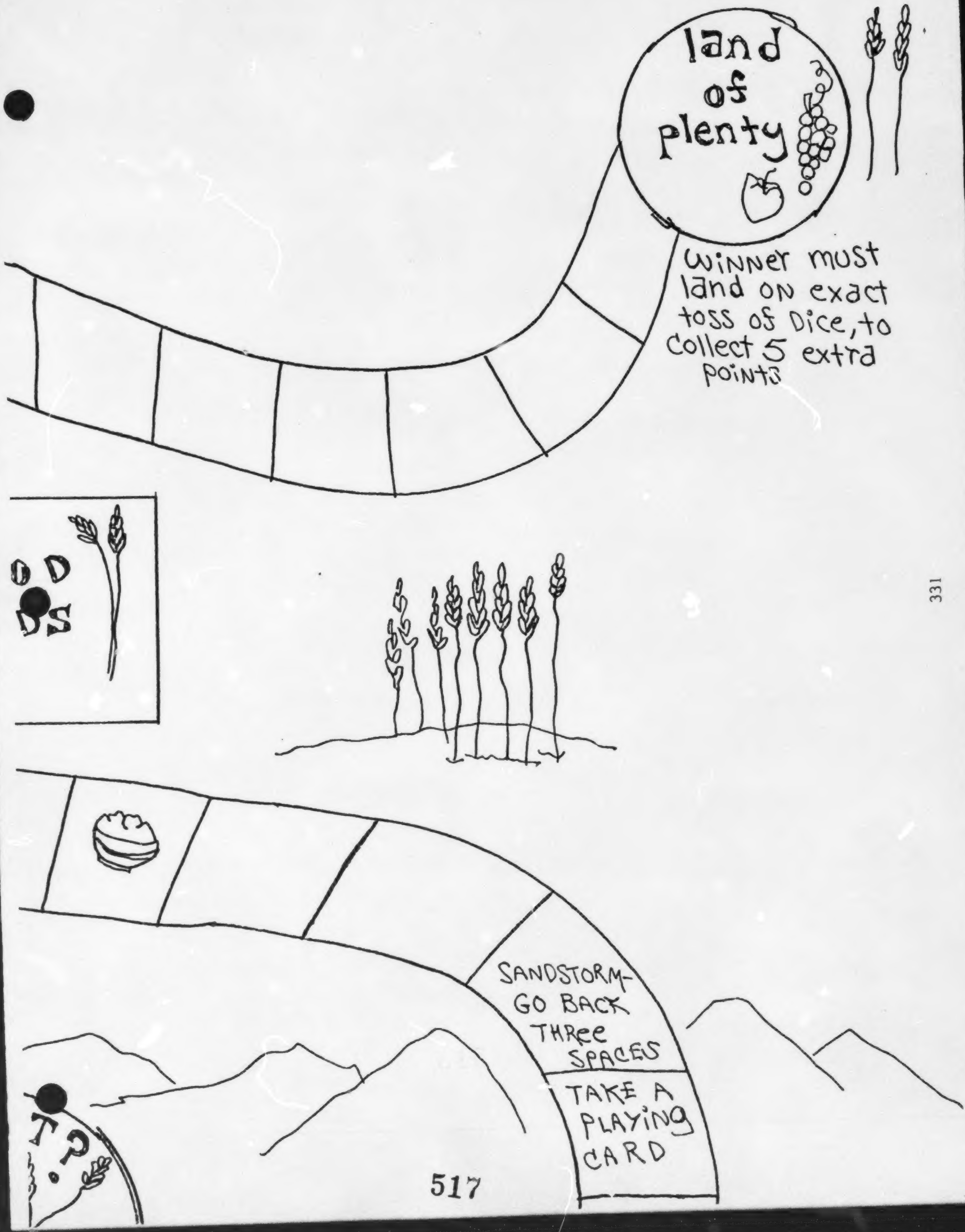
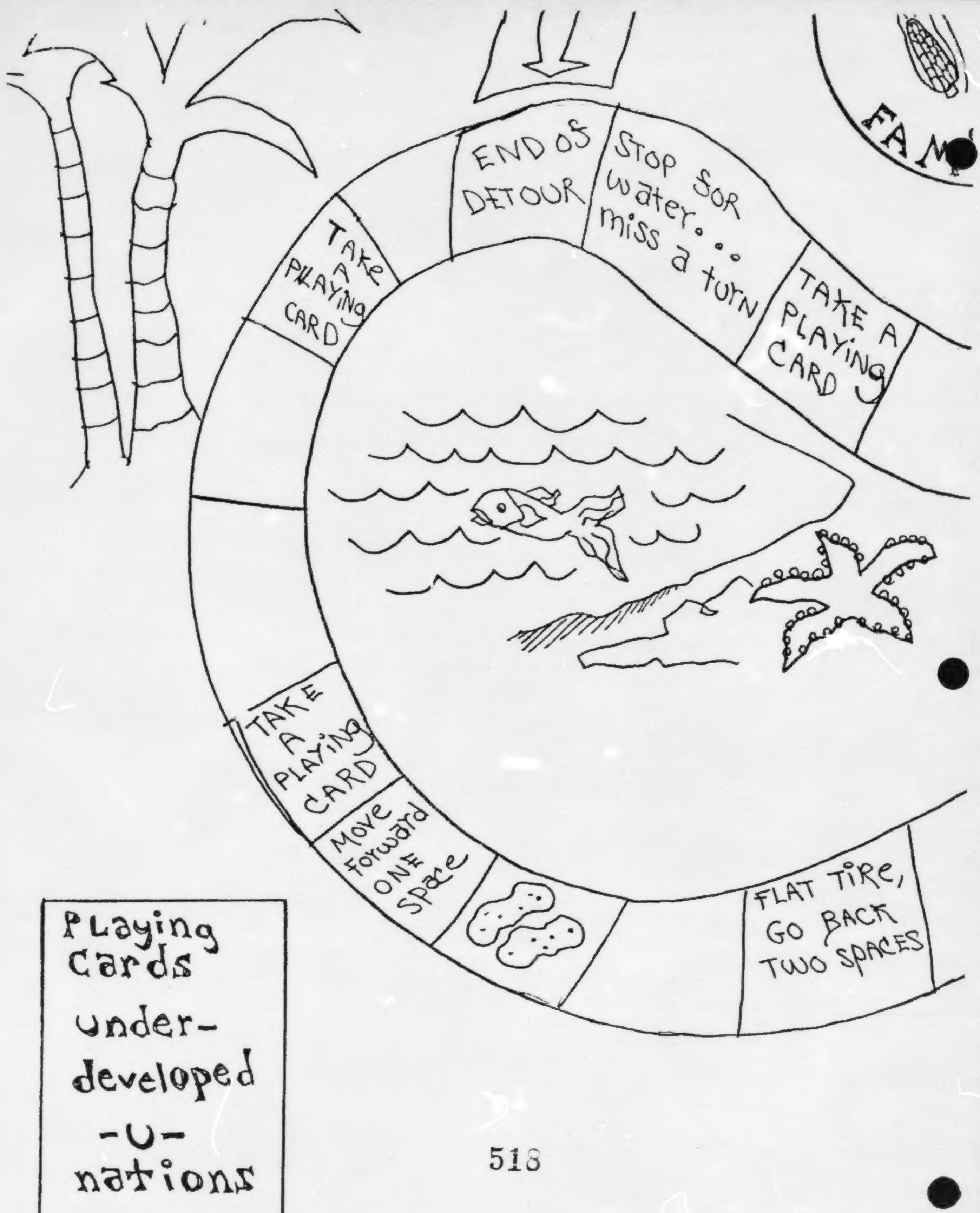
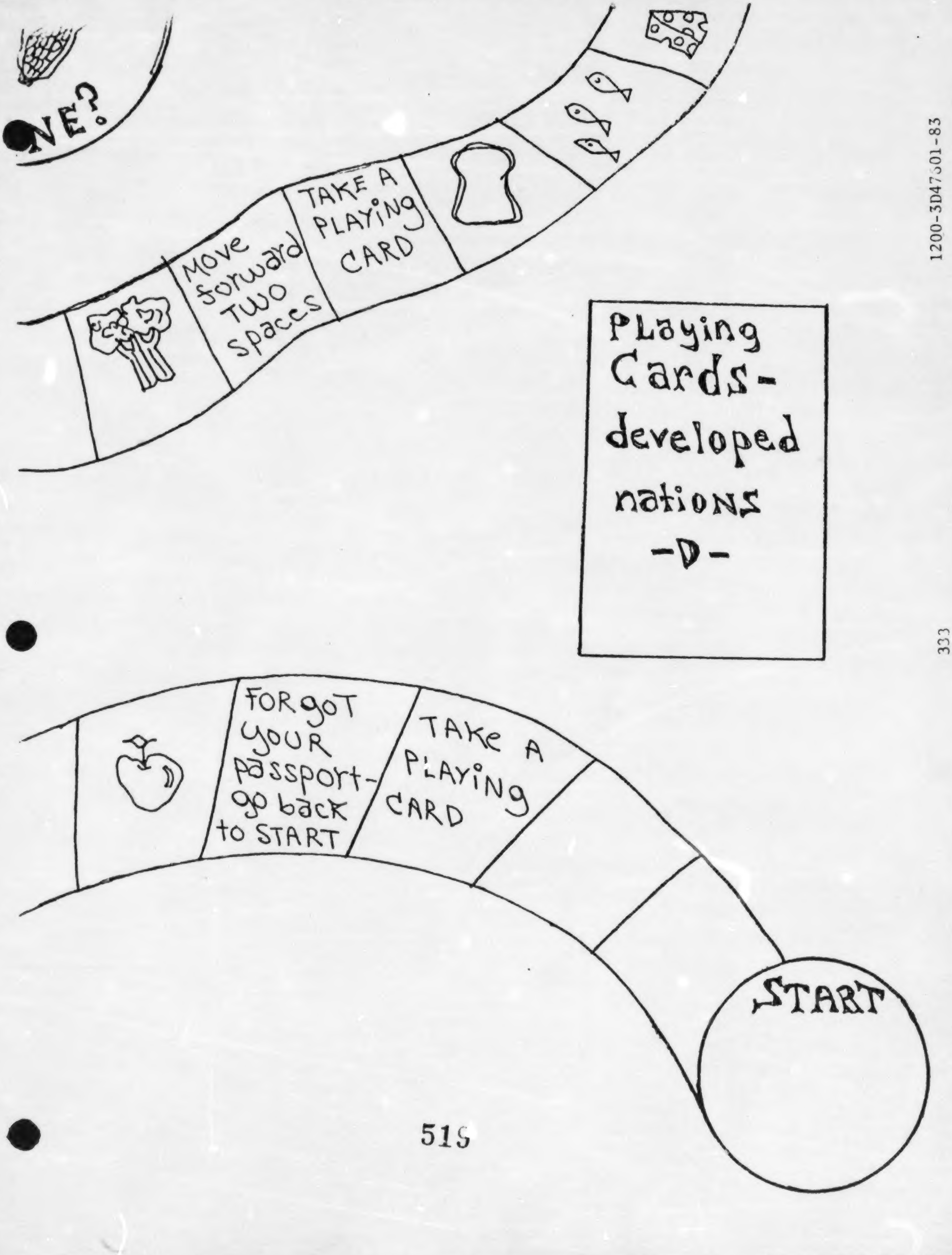

famine
STOP! add up your points If less than 25, go to famine - otherwise go to LAND PLENTY
TAKE A PLAYING CARD
move forward ONE Space
DETOUR
TAKE A PLAYING CARD


land of plenty
Winner must land on exact toss of Dice, to collect 5 extra points
O D
DS
SANDSTORM-
GO BACK
THREE
SPACES
TAKE A
PLAYING
CARD
T ?


FAM
END OF DETOUR
Stop for water... miss a turn
TAKE A PLAYING CARD
TAKE A PLAYING CARD
TAKE A PLAYING CARD
Move forward ONE space
FLAT TIRE, GO BACK TWO SPACES
Playing Cards under-developed -U- nations


NE?
Move forward TWO spaces
TAKE A PLAYING CARD
Playing Cards - developed nations -D-
FORgoT your passport - go back to START
TAKE A PLAYING CARD
START

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